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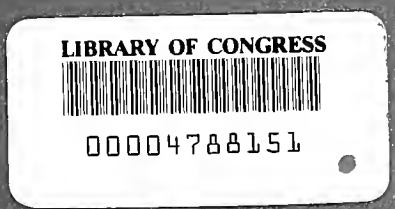

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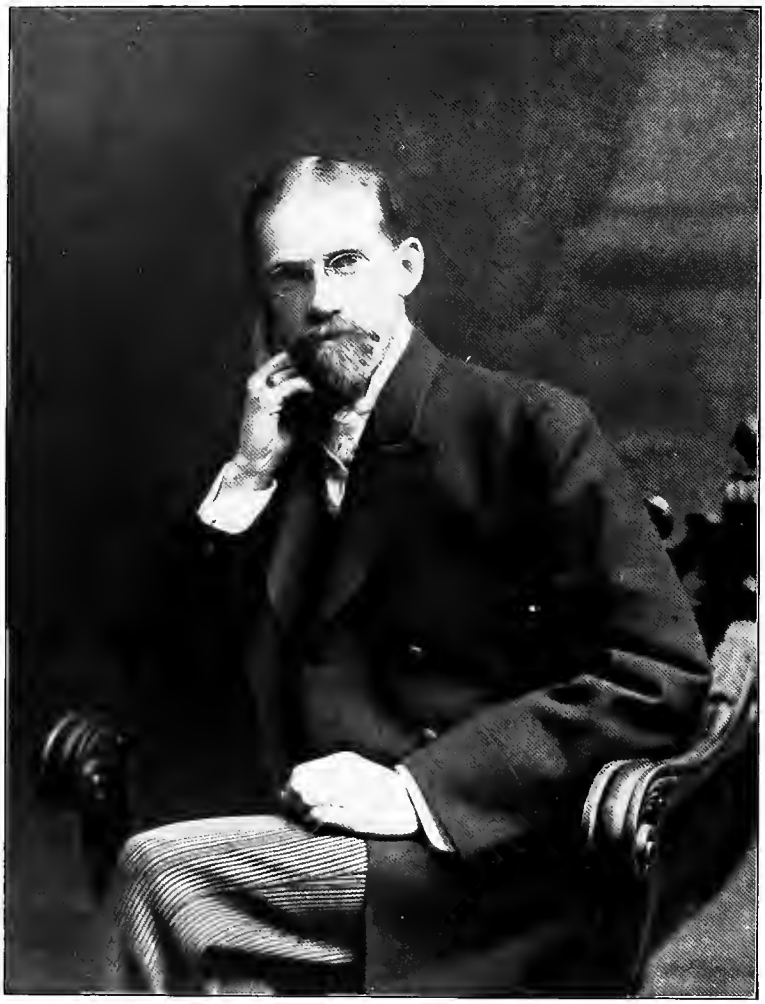

CARLSTROM'S PROPORTIONS OF THE HUMAN FORM

A SCIENTIFIC TREATISE ON PROPORTIONS AS THEY APPLY TO GARMENT CONSTRUCTION

HEIGHTS AND WIDTHS REDUCED TO RULES APPLICABLE TO PRACTICE

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INDEX TO SUBJECTS.

PART I.

PAGE

Preface 7
Introduction 9
The Uses of Proportions 10
Average Proportions 11
The Foundation 14
The Principle 15
Heights and Widths 16
A Combination of Numbers 18
Waist Quantities 22
The Four-Inch Difference 26
Combination Waist Sizes 26
Easy Waist Sizes 26
Weight of the Human Body 29
Elements of Short Measures by Heights and Widths 34
The Depth of Scye 34
The Blade 36
The Front-Shoulder 36
The Over-Shoulder 38
Elements of Short Measures by Widths Only 38
The Depth of Scye 38
The Blade 40
The Front-Shoulder 40
The Over-Shoulder 42
Additions to Short Measures for Overcoats 44
Short Measures for Overcoats 46
The Depth of Scye 46
The Blade Measure 48
The Front-Shoulder Measure 48
The Over-Shoulder Measure 50
The Elements of Long Measures by Heights and Widths 52
The Upper-Shoulder Measure 52
The Lower-Shoulder Measure 54
Long Measures for Overcoats 56
The Upper-Shoulder Measure 56
The Lower-Shoulder Measure 56
Proportionate Division of Widths 58
Anatomical Division of Heights 60
The Octaval Division 61
Anatomical Figures 62
The Illustration Applied 64
The Working Table for Averages 68

PAGE

The Corpulent Type 70
The Working Table for Corpulents 72
The Slender Form 76
The Working Table for Slender Forms 78
Sleeves 81
Normal 82
Corpulent 84
Slender 84
Forearm Lengths of Sleeves 86
Normal 86
Corpulent 86
Slender 86
Vest Lengths and Openings 88
Normal 88
Corpulent 90
Slender 90
Trousers 92
Normal 94
Corpulent 98
Slender 100
Breeches 102
Ready Reference Tables 104
Waist Sizes 104
Scye Depths 106
Front-Shoulder 108
Over-Shoulder 110
Upper-Shoulder 112
Underarm Lengths 114
Vest Lengths 116
Inseams and Waist Rises 118
A Basis for Lengths of Coats 120
Lengths for Averages 120
Lengths for Corpulents 122
Lengths for Slender Forms 124
Working Table Without Additions 126
Types of Forms 128
Application in Practice 133
Ready Reference Rules ..... 138, 139 and 140
The Scales 141
Confirmatory Investigations 142

PART II.

Proportions for Boys 143, 144
The Explanations 146
Boys' Trousers 148
Boys' Breeches 150

PART III.

PAGE
WOMEN'S PROPORTIONS 154
Explanations 156
PROPORTIONS FOR GIRLS 158
Sleeve Lengths for Women 160
Sleeve Lengths for Girls 162

INDEX OF ILLUSTRATIONS.

THE OCTAVAL DIVISION.
The Average Form 63
The Corpulent Form 71
The Slender Form 77
TYPES OF FORMS.
Sloping 129
Square 130
Erect, Normal and Stooping 131

INDEX TO TABLES.

PART I.

TABLE
1, 2 The Principle 15
3, 4, 5 Heights and Widths 17, 19, 21
6, 7, 8, 9 Waist Quantities 23, 27, 27, 27
10 Weight of the Human Body 31
11, 12, 13, 14 Elements of Short Measures by Heights and Widths 35, 37, 37, 39
15, 16, 17, 18 Short Measures by Widths Only 39, 41, 41, 43
19, 20 Additions for Overcoats 45
21, 22, 23, 24 Short Measures for Overcoats 47, 49, 49, 51

TABLE			PAGE
25, 26	Elements of Long Measures		53, 55
27, 28	Long Measures for Overcoats		57
29	Division of Widths		59
30	Division of Heights		65
31, 32, 33	Working Tables	Averages	69
		Corpulent	73
		Slender	79
34, 35, 36	Sleeves, Outside Measures		83, 85, 85
37, 38, 39	Sleeves, Forearm Lengths		87
40, 41, 42	Vest Lengths	Average	89
		Corpulent	91
		Slender	91
43, 44, 45	Trousers	Average	95
		Corpulent	99
		Slender	101
46	Breeches		103
47, 48, 49, 50, 51, 52, 53, 54	Ready Reference Tables	Waist Sizes	105
		Scye Depths	107
		Front-Shoulders	109
		Over-Shoulders	111
		Upper-Shoulders	113
		Underarm Lengths	115
		Vest Lengths	117
		Inseams and Waist Rises	119
55, 56, 57	Bases for Lengths of Garments	Average	121
		Corpulent	123
		Slender	125
58	Working Table (no additions)		127

PART II.

BOYS' PROPORTIONS.

59	General Proportions	147
60	Boys' Trousers	149
61	Boys' Breeches	151

PART III.

WOMEN'S PROPORTIONS.

62	Proportions for Women's Garments	157
63	" " Girls	159
64	Sleeve Lengths for Women	161
65	" " " Girls	162

PREFACE.

SOME years ago the author became convinced that a book on practical proportions in their relation to garment cutting would prove a work of decided interest and value to those engaged in garment construction in this and other countries.

Accordingly, he began the collection of data which his own experience in the trade for a quarter of a century led him to believe would properly cover the ground necessary for a work of this kind. The result, which is before the reader, is a compendium of facts concerning the subject that the author believes to be unique in the literature of the trade.

That the work is absolutely perfect is not asserted; but that every care has been taken in making it to put forth its story in simple, plain and helpful form is a fact which, it is hoped, will be patent to every reader. It is also hoped that the information it gives will prove as valuable to the student as it has been to

THE AUTHOR.

New York, 1905.

INTRODUCTION.

THE value of a treatise of the kind that follows this chapter will undoubtedly be estimated variously by different classes in the trade; some will extend it a hearty welcome as "filling a long felt want," while others will view it with indifference. As its purpose is not to make converts, the author will have no quarrel with those who may consider it unsuited to their needs.

It is expected that the contents and the scope of a work of this kind will be looked upon differently by readers holding different trade ideals. The "Scientific" school, who incline to the belief that the art of garment cutting will ultimately become an exact science through some discovery equaling the ancient alchemists' supposed secrets, which will turn the baser metal of tailoring into gold, may grasp at this volume as a step in that direction. On the other hand, the "Artistic" school, who believe that inspiration will soar most readily when unhampered by rules and methods, will naturally look upon this effort as a waste of time.

The fact is, it is not suited to either school. Its aim is to interest the real student, the one who neither expects miracles nor takes chances on unsystematic knowledge, but expects results in return from any knowledge gained. He combines the scientific and artistic elements enough to make a happy medium. He belongs to the class that recognizes that the scientific or the mechanical and the esthetic or artistic are not antagonistic, but complementary to each other in well-cut garments.

Cutters of all schools will find in these pages, if they will consult them without prejudice, many rules and tables of proportions and variations which, if mixed with common sense and a due regard for their adaptation to individual needs, will simplify many problems that would otherwise be, at least, irksome, even though not impossible of solution. The rules and tables, when properly understood, are nothing if not practical, and their virtues have been tested by long and varied application in practice, as well as by elaborate experiments. Special pains have been taken to make them clear and easy of comprehension and no effort has been made to have them appear "learned" at the expense of intelligibility and the patience of the reader. True science abhors mystery and mysticism, particularly when the nature of the subject calls for clear and simple statements.

Viewed in this light, and considering the vastness of the field open to research along this line, the work will undoubtedly prove of great utility and be worthy of a permanent place in the library of any up-to-date cutter.

THE USES OF PROPORTIONS.

MANY will ask: "What need have I of proportions? I measure my client and apply the measures just as I take them. If his waist length is short, I apply it short, and *vice versa*." The reply must be the same as when the utility test is applied to any form of knowledge. You deal with proportions every time you put your tape around a client. You apply proportions, rightly or wrongly, every time your measures are put on paper in the production of a draft.

Proportions will solve the problem if a customer, for whom you have cut garments regularly, should change in size and you had no opportunity to remeasure him.

Proportions will check measures of which you have doubt, and will supply them, should they be overlooked in measuring.

Proportions will determine the length of garments when fashion changes.

Proportions must be understood when a set of patterns are being prepared.

Proportions are a material aid in cutting for out-of-town trade.

Proportions will aid those who produce garments on general lines.

An understanding of proportions will give you more confidence in yourself, furnish you a basis to figure from, and when carefully studied will materially aid in broadening you intellectually.

AVERAGE PROPORTIONS.

TO the pioneers in proportions who have partly blazed a way into the deep forest, I extend my respect, even though they did not thoroughly clear and make tillable the soil. Dr. Wampen, the only one whose work stands out as a classic of tailoring literature, treats of the ideal subject rather than the average, with which tailoring usually deals, as exemplified in his 36-inch-breast and 64-inch-height model man. Beyond this, the average text book on anatomy is more easily understood by laymen than is Dr. Wampen's. Still Dr. Wampen's researches in proportions remain the deepest, widest and broadest, a reservoir that subsequent writers have drawn upon.

Other authorities on general tailoring are authorities on most all phases except that of proportions, and their knowledge of proportions is usually confined to the working of a system of cutting. Under these circumstances, the researches of the author of this work have been used as a working foundation. They are based upon the actual measurements of some three thousand people from all parts of this country, with a liberal sprinkling of others from other parts of the world.

The principles herein presented are so arranged that they are not an appendix to any system, but abstract principles, applicable to any system that is laid down on right lines.

PART I.

MEN'S PROPORTIONS.

THE FOUNDATION.

AFTER the measurements gathered had been simmered down, by finding the percentage of each class, one group of two hundred (which may be used as representative) showed the following number of persons to each height from 5 feet 4 inches up to 6 feet:

Heights	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.
Relative number of persons to each height.	14	19	26	28	29	27	23	18	16

This places the 5-foot-8-inch man in the center with the greatest number of persons to his credit, and that height may be taken as a safe average—and we are seeking the average rather than the ideal height.

Having decided on the average height, we next seek the average width corresponding.

We proceed as follows:

Reduce the height, 5 feet 8 inches, to inches, or 5 feet of 12 inches each, which is equal to 60 inches and 8 inches additional, making a total of 68 inches. One-half of this amount is 34 inches. Take the first unit of this number (or the first figure to the right) and add it to 34 (4 plus 34): the sum will be 38 inches, which is the average breast size.

This result, which is first given here theoretically, is the rule that was made after the 38-breast size was found to be the average by the same test as that by which the average height was determined; namely, an average gained by actual measures. While the reason given is sufficient to establish the 38 breast as the average, there are other reasons as well. 38 is the middle quantity of the recognized "Men's sizes," from 33 to 43, both inclusive, for below 38 we have five sizes, viz., 37, 36, 35, 34 and 33, and above 38 we have also five sizes, viz., 39, 40, 41, 42 and 43. Above these we have the extremes of the corpulent and the excessively corpulent, and below them the other extremes of youths' and children's sizes.

Hence, we accept the above as the basis to work upon, as it seems to answer all requirements, both theoretical and practical, and though we have diverged from all known standards in making the 5 feet 8 inch man of 38 breast the average, we at least make it plain that we are not copyists.

THE PRINCIPLE.

TABLE 1

GIVES in tabulated form the result of the preceding deduction.

Height in feet and inches	5 ft. 8 in.
Height in inches	68 in.
Half height in inches	34 in.
The first unit of the above line	4 in.
Breast, by adding the above two lines	38 in.

The breast size can also be gained, when height and width are proportionate to each other, by deducting 30 inches from the height, as shown by

TABLE 2.

Height in inches	68 in.	
For ideal proportion reduce	30 in.	
The remainder	38 in.	is the breast size

By reversing the above rule and adding 30 inches to the breast size, the proportionate height will be found.

The above tables are the key by which heights and widths proportionate to each other may be gained.

HEIGHTS AND WIDTHS.

TABLE 3

GIVES a range of heights and widths from 5 feet up to 6 feet 8 inches of the former and from 30 to 50 inches of the latter, which have been gained in the following manner:

Line 1 gives the number of columns each way from the column of averages, which we will hereafter call the "Checking Column," and which is marked zero (o) in this table.

Line 2 gives the heights in feet and inches, which are given progressively in this table all the way up to 6 feet 8 inches. For a working table this will not hold good. A man would certainly be nearer proportionate if he gained in height when he increased in width, as per this table, but as an adult may gain in girth at any time and not increase in height after a certain age, we are brought face to face with another problem. Later, we shall give consideration to the way a man does develop, instead of the way he should develop.

Line 3, the heights reduced to inches.

Line 4, the half-heights in inches.

Line 5, the first units and fractions of Line 4 as explained in Table 1.

Line 6 gives the sums gained by adding Lines 4 and 5 and are the widths, or breast sizes, corresponding to the heights in Lines 2 and 3. The increasing heights in this table maintain a certain relation to the increasing widths and will therefore be referred to as "ideal heights" hereafter.

TABLE 3.

Line 1	Number of columns each way from Checking Column	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12
" 2	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.
" 3	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
" 4	Half heights in inches	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	36½	37	37½	38	38½	39	39½	40
" 5	Last figures and fractions of Line 4	0	0½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10
" 6	Breast sizes to correspond to heights	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

A COMBINATION OF NUMBERS.

BY examining Table 3 we find in the sizes up to 40 breast that the inches in Line 2 and the figure to the right in Lines 3 and 6 are identical. This has prompted

TABLE 4

to illustrate, perhaps, a coincidence, but one with a suggestion on relative proportion.

Line 1, the breast sizes.

Line 2. The figure to the left in Line 1, always 3 in the sizes from 30 to 39, inclusive, is placed in this line directly under itself.

Above 40 breast, continue the figure 3 in Line 2, instead of increasing it to 4 to correspond to the figure 40.

Line 3. The figure 3 of Line 2 added to the 3 of Line 1 (making 6 in each instance) and moving the unit (figure to the right) of Line 1 down to the right of the 6, in Line 3, gives the corresponding height in inches to the original quantities in Line 1.

Line 4. Now in turn move the second figure of Line 3 down and you have the number of inches above the 5 foot height corresponding to the breast size in Line 1. But in and after the 40-column above the 6 feet this would give the number of inches above 5 feet continuously, if we moved the first unit down as below 40 and placed the first figure from the left to the resultant 10 inches, or figure 1 in front, or to the left of the figure just moved down.

Line 5. Should we wish to gain the number of inches direct and in progression above the 6 feet height we deduct 2 inches from the second figure, and

Line 6 will give the result.

This table need not take much of the student's time, as it does not involve any vital principle.

TABLE 4.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	The first figure to left moved down	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
" 3	Add Lines 1 and 2 to gain height in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
" 4	Last figures of Lines 1 and 3 are inches above 5 feet height	0	1	2	3	4	5	6	7	8	9	10	11	12 or 6 ft.	13	14	15	16	17	18	19	20
" 5	Reduce from last figure of Line 4														2	2	2	2	2	2	2	2
" 6	Inches above 6 feet height														1	2	3	4	5	6	7	8

TABLE 5.

THIS table gives the same result as Table 3, but in the manner demonstrated in Table 2.

Line 1 gives the height in feet and inches, and it will be noticed that the height after the 6 foot-column decreases instead of increases, which is in accordance with the manner in which the average man develops. Those who are more than 6 feet in height belong to another class than the one we are now approaching, and that class will be dealt with later in its regular order.

Line 2, the height reduced to inches.

Line 3, a stationary amount of 30 inches up to the point where the heights turn, or up to and including the 6-foot height. Above the 6-foot height, this quantity reduces 1½ inch for each height column. This is done in order to maintain the width quantities, or breast sizes, progressively, as the widths do not decrease with the heights.

Line 4, the resultant widths, or breast sizes, by deducting the amounts in Line 3 from those of Line 2.

TABLE 5.

Line 1	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Heights in inches.....	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 3	Reduce from heights.....	30	30	30	30	30	30	30	30	30	30	30	30	30	28½	27	25½	24	22½	21	19½	18
" 4	Breast sizes resulting.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

WAIST QUANTITIES.

IN the previous tables we have laid the foundations for heights and the primary widths, or breast sizes.

Now we face the problem of how to gain the waist quantities as they usually run. The heights used after the 6-foot column are decreasing, as per Table 5, giving only 5 feet 8 inches for a 50 breast. While no rule can be laid down that will apply equally to all cases, as every man is a law unto himself, it can readily be seen that the heights employed are those of averages, and that they approximate more closely to the general run of people than if the heights continued in the more ideal, but less practical, manner as per Table 3.

The small percentage of men who grow very tall in their youth and take on a proportionate amount of flesh as they advance in years form a class by themselves. Every cutter knows the difficulty he has in keeping his height quantities down (such as the height at the neck) for men of large girth and short stature.

TABLE 6.

Lines 1, 2 and 3 are the same as in Table 3, except that the heights decrease after the 6-foot height as explained.

Line 4 indicates in inches how much the heights fall short of the ideal heights given in Table 3, viz., 12 inches for a 50-inch breast. The indicators are gained as follows: Take the difference between the greatest height (which is in column 4 to the right of the Checking Column) and the height in the column of the breast size dealt with. For example, 50 breast and 5 feet 8-inches height is a difference of 4 inches (6 feet being equal to 5 feet 12 inches; 5 feet 8 is 4 inches less). Multiply this difference (4 inches) by 3, making 12 inches in all. Place this 12 inches under 5 feet 8 inch height as shown. The figures to the left of it are gained in the same manner.

Line 5, the half-heights in inches. Above the 6-foot height the half-heights are half of the combined quantities of Lines 3 and 4.

Line 6, the first units of figures in Line 5 as explained for Tables 1, 2 and 3.

Line 7, the breast sizes are gained by adding Lines 5 and 6. The foregoing is explained in previous tables.

Line 8, the waist sizes are gained by checking each size by the average height and width column, marked 0 (cypher), as follows:

For the Checking Column itself the half-height, or 34 inches, is the waist size corresponding to the 38-inch breast.

To gain the increase in the larger sizes, the waist quantity after the Checking Column is gained as follows:

Take the difference between the ideal height (or the height corresponding to the breast sizes if its heights continue to increase above the 6-foot height as they do below it) and the checking height, and to the amount thus gained add half of its own quantity. Then add the total to the half height of the Checking Column.

TABLE 6

Line 1	Number of columns each way from Checking Column	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12
" 2	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 3	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 4	Amounts heights are less than ideal heights														1½	3	4½	6	7½	9	10½	12
" 5	Half-heights in inches	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	36½	37	37½	38	38½	39	39½	40
" 6	Last figure of Line 5	0	0½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10
" 7	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 8	Waist sizes	28	28¾	29½	30¼	31	31¾	32½	33¼	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52
" 9	Addition to gain waist by	2	¾	1½	1¼	1	¾	½	¼	0	1	2	3	4	5	6	7	8	9	10	11	12

The result will be the waist size corresponding to the height and breast size dealt with.

Example:—To find the waist for a 48 breast, note the figure in the top line of the column in which 48 breast is located. In this case 10 is the figure in the top line and it represents the difference between the Checking Column height and the height that would correspond to the height of the column in which the breast size is found, if the height continued to increase in the same ratio after the 6-foot height as it does before it.

Take the 10 inches (in this case) and one half of its own amount, or 5 inches, making 15 inches in all. Add the 15 inches gained to the half-height of the Checking Column. The half-height, 34 inches, gives plus 15 inches, the waist size for the 48 breast, viz., 49 inches.

Again take a 40 breast. The figure in the top line of this column is 2. One-half of 2 is 1, making 3 the total. Add this 3 to the half-checking height, or 34 plus 3, and you have 37 waist for a 40 breast.

By the above method we have used one and one-half of the difference between the ideal and the checking height. This has given us an increase of $1\frac{1}{2}$ inch waist to each breast size *after* the Checking Column, as may be noted in the accompanying table.

The decrease of the waist sizes *before* the Checking Column must be relatively less than the increase that follows; in fact, just one-half the amount, or $\frac{3}{4}$ inch to each size.

This is gained in the least complicated manner by proceeding as before, that is, by finding the difference between the ideal and the checking height, then adding to this difference one-half of its own amount, but taking only one half of the total gained for the waist sizes *before* the Checking Column.

Example:—To find the waist size for a 34 breast, find the figure in the top line of the column in which the breast size is located It is, in this case, figure 4, and represents the difference between the ideal height, corresponding to the breast and the checking height. Take this difference (4 inches) and add one-half (or 2 inches) of its own value to itself, making a total of 6 inches. So far we have proceeded exactly as we did in the sizes after the Checking Column; but for sizes *before* the Checking Column only one-half of this amount, or 3 inches, is used, which is *deducted* (instead of added) from the half of the checking height. The 3 inches gained in this case, when deducted from 34 inches, leaves 31 inches for a 34 breast.

Another example:—Take a 32 breast. The figure at the top is 6, one-half of which is 3, making 9 altogether. One-half of 9 is $4\frac{1}{2}$ inches. Deduct this from 34, or from the half of the checking height, and $29\frac{1}{2}$ remains, which is the waist size for a 32 breast.

This gives relatively less decreasing waist sizes as the height and breast decreases, which is perfectly in keeping with form development for this class. Other types will be taken up later in their regular order.

When the width is after and the height before the Checking Column, as, for instance, 44 breast and 5 feet 6 inches height, add the numbers in the top line of both height and width, as 2 and 6 in this case, making 8, and add the half of the total value to itself, making 12, and add this to the waist of the lesser height, or to $32\frac{1}{2}$ in this case, making a total of $44\frac{1}{2}$ waist for a man of 44 breast and 5 feet 6 inches tall.

Line 9 gives a ready quantity that may be used to gain average waist sizes, by *deducting* the amounts in this line from the half heights before the Checking Column and *adding* to the half height the quantity in Line 9 after the Checking Column.

THE FOUR-INCH DIFFERENCE BETWEEN BREAST AND WAIST.

MANY have been taught, and persist in believing, that the average is only expressed by a 4-inch difference between the breast and the waist quantities. We have given consideration to the advocates of this method and give in the next table a rule whereby the 4-inch difference may be observed up to any point deemed desirable. In this table we have held it up to the Checking Column and from there up we have used the same method as explained for Table 6.

TABLE 7.

THE easiest way to hold the 4-inch difference is to find the quantity in the top line and *deduct* it from the half-height of the Checking Column. If you wish to continue it after the Checking Column, *add* the quantity in the top line to the half-height of the Checking Column.

Line 1, the number of columns each way from the Checking Column.

Line 2, the breast sizes according to the heights in Table 6.

Line 3, the waist sizes by the method just explained.

Example:—33 breast. The figure in the top line is 5. Take this quantity *without any additions or reductions* and deduct from 34, the half-height of the Checking Column, making 29 waist for 33 breast.

COMBINATION WAIST SIZES.

TABLE 8.

IN this table is given the 4-inch difference in the intermediate sizes, while the larger as well as the smaller sizes are given as in Table 6.

Variations to suit trade or personal ideas can easily be made from this.

EASY WAIST SIZES.

TABLE 9.

MANY cutters who design sets of patterns prefer to have the waist sizes run large rather than small. This table may be used to advantage when this effect is desired.

Above 40 and below 33 breast, the waist sizes have been gained as in Table 6. The intervening sizes have been gained by adding $\frac{1}{4}$ inch to the waist of the 34 breast size, and the same amount to the waist for the 40 breast size, and holding the rest at the even numbers.

TABLE 7.

Line 1	Number of columns each way from Checking Column.	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12
" 2	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 3	Waist sizes	26	27	28	29	30	31	32	33	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52

TABLE 8.

Line 1	Breast	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	Waist	28	28¾	29¼	29¾	30¼	31	32	33	34	35¼	36¾	38½	40	41½	43	44½	46	47½	49	50½	52

TABLE 9.

Line 1	Breast	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	Waist	28	28¾	29½	30¼	31¼	32	33	34	35	36	37¼	38½	40	41½	43	44½	46	47½	49	50½	52

This Book is not the entire distance to knowing how. It's only a stepping stone. Keep right on stepping . . .

THE WEIGHT OF THE HUMAN BODY AND ITS RELATION TO HEIGHTS AND WIDTHS.

IN touching upon the subject of weights, I am, perhaps, inviting much criticism, not because weight is not governed by laws, but for the reason that the method of deriving a conclusion from the combination of the height and width is too subtle to give the same results, unless all conditions are equal. For instance, the weight of different people varies, even when they are of equal height and circumference. The solid or muscular man no doubt weighs more to the square inch than does the soft or flabby individual. The athlete of a given height and body measure would weigh more than would one of the same dimensions who had never done anything to harden his muscles.

The man in perfect health weighs more than he would a few days later after some illness had attacked him, without any apparent loss to circumference and of course none to height.

Then again, if a man were measured by ten other men for the purpose of ascertaining his weight, there would be ten results, all differing in some respects, which would give ten bases to work from and ten ultimate, different results, whereas only one could be right. This suggests that many who will test the rule given in this connection on a standard scale will find a discrepancy, regardless of whether the basis has been gained faultily, or the composition of the molecules that constitute the weight are more solid or more flabby than normal, or whether the weight of the garments worn is extreme; the verdict most easily rendered is an unfavorable one.

Even when allowances are made for ordinary divergences, the author has met exceptions in his experiments that seemed to defy all rules.

The percentages below speak for themselves.

Out of a representative group of a hundred men measured and weighed, only 25% varied more than 10 pounds from average weights in Table 10 below; 25% varied less than ten pounds and more than 5 pounds; 35% varied between 3 and 5 pounds; 15% came within 1 pound and some of these tallied exactly with the weight in the table.

This proved that with due allowances for the conditions referred to above there is enough in the rule expressed in Table 10 to furnish a guide as to the kind of an individual we are dealing with, whether of flabby or solid flesh.

TABLE 10

GIVES the results of the observations as follows:

Line 1, the heights in feet and inches.

Line 2, the same heights in inches.

Line 3, the half heights in inches.

Line 4, the first units and fractions of Line 3.

Line 5, the breast sizes.

Line 6, the waist sizes.

Line 7, the seat sizes.

Line 8, the combined quantities of Lines 3, 4, 5, 6 and 7, which are the weights corresponding to the heights and widths, less some modifications to follow.

When the waist gains on the breast above a 4-inch difference, add 10 pounds for the first inch the waist gains and decrease 1 pound successively for each inch increase after the first.

Example:—For a man 5 feet 10 inches in height, 44 breast, 46 waist and 45 seat proceed as follows:

Half-height	35	inches
First unit	5	"
Breast	44	"
Waist	46	"
Seat	45	"
Making	175	pounds

To this add for the increase of waist. For 44 breast the waist, if normal, would be 4 inches less, or 40 inches; but the measure calls for 46, hence there are 6 inches to account for. For the first inch increase we allow 10 pounds, 9 pounds for the second, 8 for the third, 7 for the fourth, 6 for the fifth, and 5 for the sixth, making a total of 45 pounds, which when added to the 175 makes a total of 220 pounds.

When the waist is less than the 4-inch difference, deduct from the original amount $2\frac{1}{2}$ pounds for each inch.

Example:—If the half-height was $34\frac{1}{2}$, first unit $4\frac{1}{2}$, breast, waist and seat, respectively, 36, 30 and 37, the total would be 143 pounds. As the waist is 2 inches less than the normal there would be 2 inches to deduct for and $2\frac{1}{2}$ pounds for each inch, or a total of 5 pounds, which when deducted from the 143 pounds would leave 138 pounds.

In increasing and decreasing waists the change has not all taken place at the waist region, but the waist quantity serves as an index to the general loss or gain, as the case may be. Besides this, reduce $1\frac{1}{2}$ inch from the weight for each inch the height is less than 5 feet 8 inches.

Line 9 gives the amount representing the increase of waist above the 5-feet 8-inch height, and the $1\frac{1}{2}$-inch decrease from the height below the 5-feet 8-inch height.

Line 10 gives the weight corresponding to heights and widths, as modified by the variations above.

While the above deductions have reached an approximate accuracy that entitles them to consideration, no claim is made that they are infallible.

The measures given are tailors' measurements as taken over the vest and not

TABLE 10.

Line 1	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 3	Half-heights in inches	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	35¾	35½	35¼	35	34¾	34½	34¼	34
" 4	Last figure of Line 3	0	½	1	1½	2	2½	3	3½	4	4½	5	5½	6	5¾	5½	5¼	5	4¾	4½	4¼	4
" 5	Breast	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 6	Waist	28	28¾	29½	30¾	31	31¾	32½	33¼	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52
" 7	Seat	31	32	33	34	35	36	37	38	39	40	41	42	43	44¼	45½	46¾	48	49¼	50½	50¾	53
" 8	Result of Lines 3, 4, 5, 6 and 7	119	122¾	126½	129¾	134	137¾	141½	145¼	149	153½	158	162½	167	170¼	173½	176¾	180	183¼	186½	188¾	193
" 9	Reduce from Line 8 before Column O and add after it.	12	10½	9	7½	6	4½	3	1½	0	5	10	14½	19	23	27	30½	34	37	40	42½	45
" 10	Weights corresponding to heights and widths	107	112¼	117½	122¼	128	133½	138½	143¾	149	158½	168	177	186	193¾	200½	207¼	214	220½	226½	231¼	238

body measurements ordinarily employed for scientific purposes. The weights are also given for the draped model, or for a man as tailors deal with him. Body measurements are the proper thing when the actual size of man is being ascertained, but they would be misguiding in this connection. As the forms dealt with must be divided into classes and understood, so must weight for the extremes be treated likewise. The weight of children and giants could not be closely estimated by the method employed in Table 10.

If a cutter is not benefited by studying this book, there may be something the matter with the book; but if the same cutter is not benefited by the study of any other book, there is something the matter with the cutter . .

THE ELEMENTS OF SHORT MEASURES BY HEIGHT AND WIDTH.

SHORT measures partake of both height and width, excepting the blade, which is taken and applied laterally only, and is therefore only an element of width. Divisions of the breast measure alone can never give the flexibility to correspond to the different types of men met with in actual practice. For instance, for two men of the same breast circumference the short measures would probably not be alike if the height of one was 5 feet 6 inches and the other was 6 feet 2 inches. The height is a very important factor in arriving at conclusions, modified by the square and sloping shoulder, toward which we will direct our attention later. The tables to follow will be found to give the height and width quantities correctly. Other elements, which enter into the proposition, will of course alter these quantities, but this does not invalidate them within the scope considered in the present connection.

THE DEPTH OF SCYE.

TABLE 11.

THIS table gives the *elements* of the *depth of scye* as follows:

Line 1, the heights in feet and inches.

Line 2, the same heights reduced to inches.

Line 3, one-fourth of the total heights in inches, which is the quantity we have to deal with in this case.

Line 4, the breast sizes corresponding to the heights, which were explained in Table 6.

Line 5, the breasts on the 4ths of the square.

Line 6, one-fourth of the heights on the 4ths of the square.

Line 7, the totals of Lines 5 and 6 and the amounts of the depths of scyes as taken. All minor fractions that tend to confuse have been left out.

Line 8 allows $\frac{3}{4}$ inch for seams and make-up, but may be more or less according to the requirements of individual systems, or according to the custom of the operator.

The elements of the scye depth are therefore one-half breast on the 4ths, the one-fourth heights on the 4ths, and the $\frac{3}{4}$ inch addition.

TABLE 11.

Line 1	Heights in feet and inches...	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Heights in inches.....	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 3	One-fourth heights in inches..	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	17⅞	17¾	17⅝	17½	17⅜	17¼	17⅛	17
" 4	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 5	One-fourth the half breast....	3¾	3⅞	4	4⅛	4¼	4⅜	4½	4⅝	4¾	4⅞	5	5⅛	5¼	5⅜	5½	5⅝	5¾	5⅞	6	6⅛	6¼
" 6	One-sixteenth the heights, or ¼ heights on 4ths.....	3¾		3⅞	4		4⅛		4¼		4⅜		4½		4⅝		4⅜		4⅝		4⅛	
" 7	Depth as taken.....	7½	7⅝	7⅞	8	8¼	8½	8⅝	8¾	9	9⅛	9⅜	9½	9¾	9⅞	9 15/16	10 1/16	10⅛	10¼	10 5/16	10⅜	10½
" 8	Depth with ¾ inch added....	8¼	8⅜	8⅝	8¾	9	9¼	9⅜	9½	9¾	9⅞	10⅛	10¼	10½	10⅝	10 11/16	10⅝	10⅞	11	11 1/16	11⅛	11¼

THE BLADE.

TABLE 12.

THIS table gives *the elements* of the *blade* which only deal with the widths, as the measure is taken in a lateral direction. Therefore widths only are employed in its production.

As the heights are not used, they are not entered in this connection.

Line 1, the breast sizes.

Line 2, one-fourth total breasts, or the half-breasts on the HALVES of the square.

Line 3, 2 inches added to the quantities of Line 2, which is the blade as taken, without additions.

Line 4, 1½ inch added to Line 3, or 3½ inches added to Line 2, which gives the totals as applied to the drafts, with all additions for seams, ease and make up.

The blade is therefore composed of the half-breast on the HALVES *plus* 3½ *inches.*

THE FRONT-SHOULDER MEASURE BY HEIGHTS AND WIDTHS.

THIS table contains the *elements* of the *front-shoulder measure*, or strap, and partakes of both height and width as it is taken and applied obliquely, passing both in a vertical and a lateral direction.

TABLE 13.

Line 1, the heights in feet and inches.

Line 2, one-fourth the heights reduced to inches and the quantities dealt with for securing the height element.

Line 3, the breast sizes corresponding to the heights of Line 1.

Line 4, one-fourth the total breasts, or the half-breasts on the HALVES of the square.

Line 5, the one-fourth heights on the 6ths of the square.

Line 6, the totals of Lines 4 and 5, or the front-shoulder as taken.

Line 7, the addition of one inch for seams, ease and make-up, which may be made more or less.

The front-shoulder measure is therefore composed of the half-breast on the HALVES *and the fourth-height on the 6ths plus 1 inch.*

TABLE 12.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	One-fourth the breast	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 3	2 inches added to Line 2 (or as taken)	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2
" 4	3½ inches added. The blade with additions	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16

TABLE 13.

Line 1	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	One-fourth the height in inches	15	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	17 7/8	17 3/4	17 5/8	17 1/2	17 3/8	17 1/4	17 1/8	17
" 3	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 4	One-fourth the breast	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 5	One-fourth height on 6ths	2 1/2		2 5/8		2 5/8		2 3/4		2 3/4		2 7/8		3		2 7/8		2 7/8		2 7/8		2 3/4
" 6	Total of Lines 4 and 5 (or as taken)	10	10 1/4	10 5/8	10 7/8	11 1/8	11 1/2	11 3/4	12	12 1/4	12 5/8	12 7/8	13 1/8	13 1/2	13 3/4	13 7/8	14 1/8	14 3/8	14 5/8	14 7/8	15	15 1/4
" 7	One inch added to Line 6	11	11 1/4	11 5/8	11 7/8	12 1/8	12 1/2	12 3/4	13	13 1/4	13 5/8	13 7/8	14 1/8	14 1/2	14 3/4	14 7/8	15 1/8	15 3/8	15 5/8	15 7/8	16	16 1/4

THE OVER-SHOULDER MEASURE BY HEIGHTS AND WIDTHS.

THIS table gives the *elements* of the *over-shoulder measure*, which, as it is taken and applied over a region where it passes in both vertical and lateral directions, partakes of both height and width.

TABLE 14.

Line 1, the heights in feet and inches.

Line 2, one-fourth the heights reduced to inches and the quantities dealt with for securing the height element.

Line 3, the breast sizes corresponding to the heights of Line 1.

Line 4, the half-breasts on the SCALE OF TWO-THIRDS of the square.

Line 5, $\frac{1}{16}$ the total heights, or for convenience, one-fourth the total heights on the SCALE OF FOURTHS.

Line 6, the totals of Lines 4 and 5.

Line 7, the stationary quantity of $\frac{3}{4}$ inch added to the quantities in Line 6, except that for greater convenience the small fractions have been left off. These are the corresponding quantities to the measure as taken on a person, which does not include allowance for making.

Line 8, $\frac{3}{4}$ inch, which is the making allowance and includes all additions employed.

The over-shoulder measure is therefore composed of $\frac{2}{3}$ *of the half-breast and* $\frac{1}{4}$ *of one-fourth the height plus* $\frac{3}{4}$ *inch, to which* $\frac{3}{4}$ *inch is added for making.*

ELEMENTS OF SHORT MEASURES BY WIDTHS, OR BREAST SIZES ONLY.

As the height is not always obtainable, we have made the short measures also workable by the breast size alone, and while they cannot be flexible, as in the preceding tables, they will answer all general purposes for proportionate sizes.

THE DEPTH OF SCYE.

TABLE 15

GIVES the scye depths by the breast sizes, as follows:

Line 1, the breast sizes.

Line 2, the half-breasts on the 3rds.

Line 3, stationary quantity of $3\frac{1}{4}$ inches.

Line 4, the totals of Lines 2 and 3 which give the scye depth.

The depth of scye is therefore $\frac{1}{3}$ *breast plus* $3\frac{1}{4}$ *inches.*

TABLE 14.

Line																							
1	Heights in feet and inches....	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
2	One-fourth height in inches...	15	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	17 7/8	17 3/4	17 5/8	17 1/2	17 3/8	17 1/4	17 1/8	17
3	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
4	⅔ of the half-breast..... .	10	10 3/8	10 11/16	11	11 3/8	11 11/16	12	12 3/8	12 11/16	13	13 3/8	13 11/16	14	14 3/8	14 11/16	15	15 3/8	15 11/16	16	16 3/8	16 11/16
5	1/16 total height, or one-fourth height on 4ths.....	3 3/4	3 13/16	3 7/8	3 15/16	4	4 1/16	4 1/8	4 3/16	4 1/4	4 5/16	4 3/8	4 7/16	4 1/2		4 7/16		4 3/8		4 5/16		4 1/4
6	Total of Lines 4 and 5.....	13 3/4	14 3/16	14 9/16	14 15/16	15 3/8	15 3/4	16 1/8	16 9/16	16 15/16	17 5/16	17 3/4	18 1/8	18 1/2	18 13/16	19 1/8	19 7/16	19 3/4	20	20 5/16	20 5/8	20 15/16
7	¾ inch addition. (Fractions evened.).....	14 1/2	15	15 3/8	15 3/4	16 1/8	16 1/2	16 7/8	17 1/4	17 5/8	18	18 3/8	18 3/4	19 1/8	19 1/2	19 7/8	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2
8	¾ inch make-up allowance...	15 1/4	15 3/4	16 1/8	16 1/2	16 7/8	17 1/4	17 5/8	18	18 3/8	18 3/4	19 1/8	19 1/2	19 7/8	20 1/4	20 5/8	21	21 1/4	21 1/2	21 3/4	22	22 1/4

TABLE 15.

Line																							
1	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	
2	One-half breast on 3rds.....	5	5 3/16	5 3/8	5 1/2	5 11/16	5 7/8	6	6 1/8	6 3/8	6 1/2	6 11/16	6 7/8	7	7 1/8	7 3/8	7 1/2	7 11/16	7 7/8	8	8 1/8	8 3/8	
3	Stationary addition.....	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	
4	Scye depth. Additions included	8 1/4	8 7/16	8 5/8	8 3/4	8 5/16	9 1/8	9 1/4	9 3/8	9 5/8	9 3/4	9 15/16	10 1/8	10 1/4	10 3/8	10 5/8	10 3/4	10 15/16	11 1/8	11 1/4	11 3/8	11 5/8	

THE BLADE.

TABLE 16.

THIS table gives the component parts of the blade by the breast sizes.

Line 1, the breast sizes.

Line 2, one-fourth the total breasts, or half-breasts on the halves of the square.

Line 3, the stationary quantity of $3\frac{1}{2}$ inches.

Line 4, the totals of Lines 2 and 3, which are the blade sizes corresponding to the breast sizes.

The blade is therefore one-half the breast size on the halves and $3\frac{1}{2}$ *inches.*

THE FRONT-SHOULDER.

TABLE 17.

THIS table gives the front-shoulder measures or strap lengths by the breast sizes.

Line 1, the breast sizes.

Line 2, one-fourth full breasts, or half-breasts on the halves of the square.

Line 3, stationary quantity of $3\frac{3}{4}$ inches.

Line 4, the totals of Lines 2 and 3, which are the front-shoulder measures corresponding to the breasts.

The front-shoulder measure is therefore one-half breast on the SCALE OF HALVES *and* $3\frac{3}{4}$ *inches.*

TABLE 16.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	One-fourth total breast	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 3	Stationary addition	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
" 4	The blade. Additions included	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16

TABLE 17.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	One-half breast on halves	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 3	Stationary addition	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4
" 4	Front shoulder. Additions included	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16	16 1/4

THE OVER-SHOULDER MEASURE.

TABLE 18.

THIS table gives the over-shoulder measures by the breast sizes.

Line 1, the breast sizes.

Line 2, $\frac{2}{3}$ of half-breasts.

Line 3, stationary quantity, $5\frac{1}{4}$ inches.

Line 4, the total of Lines 2 and 3, which are the over-shoulder measures by the breast sizes.

The over-shoulder measure is therefore $\frac{2}{3}$ of the half-breast and $5\frac{1}{4}$ inches.

TABLE 18.

Line 1	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	⅔rds of half-breast.....	10	10 3/8	10 11/16	11	11 3/8	11 11/16	12	12 3/8	12 11/16	13	13 3/8	13 11/16	14	14 3/8	14 11/16	15	15 3/8	15 11/16	16	16 3/8	16 11/16
" 3	Stationary addition.....	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4
" 4	The over-shoulder. Additions included.....	15 1/4	15 5/8	15 15/16	16 1/4	16 5/8	16 15/16	17 1/4	17 5/8	17 15/16	18 1/4	18 5/8	18 15/16	19 1/4	19 5/8	19 15/16	20 1/4	20 5/8	20 15/16	21 1/4	21 5/8	21 15/16

ADDITIONS TO SHORT MEASURES FOR OVERCOATS.

AS an undercoat goes over the vest, so an overcoat goes over the undercoat; and as the undercoat is usually measured over the vest, so an overcoat can, perhaps, best be measured over the undercoat; but whether this be so or not, certain it is that the same results must be attained by both methods. The explanation following will be with that end in view.

Let us suppose we have only the measures as taken over the vest for an undercoat and are called upon to make an overcoat from them in one case, and then take the same measures over an undercoat in another case.

As both methods aim at producing the same thing, the two sets of measurements, with proper allowances, should produce the same results, with the provision that those taken over the undercoat are not taken over a garment too heavily padded or of too heavy or too light weight goods.

A two-inch increase of the measures taken on the undercoat over those taken on the vest may be considered the basis for the breast and waist quantities. This will not allow for extra drapery, as in box coats, but drapery is not a matter of measurements, merely a matter of emphasized width quantities, and therefore does not apply in this connection.

Let us take two instances, one of measures taken over the vest and the other taken over the undercoat and compare them as follows:

Over the vest as taken	36 breast	8⅝ depth	11 blade	11⅜ front	16½ over
Over the vest with additions	36 breast	9⅛ depth	12⅓ blade	12⅝ front	17¼ over
Over the undercoat as taken	38 breast	9 depth	11¼ blade	12⅜ front	17¼ over
Over the undercoat as taken with ordinary additions	38 breast	9⅝ depth	13 blade	13¼ front	18 over
As both methods should be	38 breast	9⅞ depth	13¼ blade	13½ front	18¼ over

An overcoat of any given size should, of course, be more ample than an undercoat of the same size as the undercoat comes closer to the body and is less subject to shoulder building and less affected by the weight of the vest material. Only the front of a vest is made of heavy material, the back is made from a light weight lining, while the overcoat has to pass over the back, front and sleeves of the undercoat, which are all of the same weight.

Our aim is, therefore, to make such additions to the measures that, whether they are taken over the vest or over the coat, they will tally with the measures marked "As both methods should be" in the above comparative example.

TABLE 19

EXPLAINS the additions made to measures taken over the vest to get the results explained above, so as to make them workable in order to gain overcoat measures by them.

Column 1 gives respectively breast, waist, depth, blade, front and over-shoulder measures as taken over the vest.

Column 2, the additions to make them overcoat measures.

Column 3, the resultant overcoat measures with additions included—the measures as they should be used.

MEASURES OVER THE VEST					
Columns	1		2		3
Breast	37	PLUS	2	=	39
Waist	34	"	"	=	36
Depth	8 3/4	"	1 1/4	=	10
Blade	11 1/4	"	2 1/4	=	13 1/2
Front shoulder	12	"	1 3/4	=	13 3/4
Over shoulder	16 7/8	"	1 5/8	=	18 1/2

TABLE 19.

MEASURES OVER THE COAT					
Columns	1		2		3
Breast	39	PLUS	0	=	39
Waist	36	"	"	=	36
Depth.	9 1/8	"	7/8	=	10
Blade	11 3/4	"	1 3/4	=	13 1/2
Front shoulder	12 1/2	"	1 1/4	=	13 3/4
Over shoulder	17 5/8	"	7/8	=	18 1/2

TABLE 20.

TABLE 20.

THIS table gives an example of measures taken on the same man as in the preceding table, but in this case over the undercoat.

Column 1 is respectively the breast, waist, depth, blade, front and over-shoulder measures as taken over the undercoat.

Column 2, the additions required for overcoats.

Column 3, the resultant measures with additions included—the measures as they should be used for overcoats.

It will be seen that the results are the same in Tables 19 and 20, as of course should be the case in two methods which have in view the same end. The difference is all made in Columns 1 and 2, and is merely a matter of addition to make the result uniform, regardless of whether the measures are taken over the undercoat or over the vest.

SHORT MEASURES FOR OVERCOATS.

THE governing principles in obtaining overcoat measures are identical with those already explained for undercoats. The difference consists in additions only, as the primary heights and widths are the same.

THE DEPTH OF SCYE FOR OVERCOATS.

TABLE 21

GIVES the depth of scye for overcoats as follows:

Line 1, the heights in feet and inches.

Line 2, the breast sizes for overcoats corresponding to the heights given, which, it will be noticed, are two sizes larger than for undercoats. As a man remains the same height whether he is having an overcoat or an undercoat made, the overcoat to go on top of the undercoat must be two sizes larger, as it has a greater circumference to cover.

Line 3 introduces the waist sizes, which have also increased two sizes, having a corresponding increase of circumference to cover.

As an overgarment is always an ample one, the basis for these waist quantities is the same as those given in Table 9.

Line 4, the depths of scye corresponding to the heights and widths given, which for overcoats is $\frac{1}{8}$ inch more than the depths of scye for undercoats of the same heights and widths as given in Table 11.

TABLE 21.

Line 1	Heights in feet and inches...	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Breast sizes.....	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 3	Waist sizes.....	30	30¾	31½	32¼	33¼	34	35	36	37¼	38½	40	41½	43	44½	46	47½	49	50½	52	53½	55
" 4	Depth of scye.....	8¾	8⅞	9	9¼	9⅝	9¾	9⅞	10	10¼	10⅜	10⅝	10¾	10⅞	11⅛	11¼	11⅝	11⅞	11⅛	11½	11⅞	11¾

THE BLADE MEASURE FOR OVERCOATS.

TABLE 22.

HERE we have the blade measures for overcoats. The method is explained in Table 12, and the additions given in Tables 19 and 20 apply in this case.

The heights are omitted, as only widths are dealt with.

Line 1, the corresponding breast sizes for overcoats.

Line 2, the corresponding *blade* quantities, *which are* $\frac{1}{4}$ *inch more than the blade measures for undercoats of the same heights and widths as given in Table 12.*

THE FRONT MEASURE FOR OVERCOATS.

TABLE 23.

THIS table contains the front-shoulder measures for overcoats. The explanations for additions in Tables 19 and 20 apply to this table.

Line 1, the heights in feet and inches.

Line 2, the breast sizes corresponding to the heights.

Line 3, *the front-shoulder measures, which are* $\frac{1}{8}$ *inch in excess of those given for the undercoats of the same size and height.*

TABLE 22.

Line 1	Breast sizes	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 2	The blade	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4

TABLE 23.

Line 1	Height in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Breast sizes	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 3	Front-shoulder measure	11 3/4	12	12 1/4	12 5/8	12 7/8	13 1/8	13 3/8	13 3/4	14	14 1/4	14 3/8	14 3/4	15	15 1/4	15 1/2	15 3/4	16	16 1/8	16 3/8	16 5/8	16 7/8

OVER-SHOULDER MEASURE FOR OVERCOATS.

TABLE 24.

THIS table gives the over-shoulder measures for overcoats. The additions are explained in Tables 14, 19 and 20.

Line 1, the heights in feet and inches.

Line 2, the corresponding breast sizes.

Line 3, the *over-shoulder quantities* according to additions in Tables 19 and 20, *which are* $\frac{1}{8}$ *inch greater than those employed in the undercoats of the same heights and widths.*

This gives a practical basis to work from and will be found very convenient for practical application.

TABLE 24.

Line 1	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
Height in feet and inches.....																					
" 2 Breast sizes.....	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 3 The over-shoulder measure...	15 7/8	16 1/4	16 5/8	17	17 3/8	17 3/4	18 1/8	18 1/2	18 7/8	19 1/4	19 5/8	19 7/8	20	20 1/4	20 3/8	20 1/2	20 3/4	21	21 1/8	21 1/4	21 3/8

THE ELEMENTS OF LONG MEASURES BY HEIGHTS AND WIDTHS.

LONG measures, or shoulder measures, traverse sections of the body at the region indicated by the name. They partake of both the heights and widths of the parts covered in their taking; but as the purposes of the upper and lower measures are of a different nature the measures must be treated differently. The effects to be gained by the use of long measures are the shoulder slope and the shoulder size, the former a height quantity and the latter a width quantity. This suggests that the upper-shoulder measure should register quantities towards gaining the heights, and therefore should partake of the heights as well as of the widths, while the lower-shoulder measure should distribute the size quantities, and therefore can only partake of the breast sizes or widths. This arrangement holds the lower measures at relatively proportionate quantities corresponding to the breast sizes. The height element gives greater flexibility to the upper measures for a greater slope in the slender sizes and squareness in the corpulent forms, or according to the combination of the elements dealt with as taken and applied in actual practice.

THE UPPER-SHOULDER MEASURE.

TABLE 25.

THIS table deals with the upper-shoulder measure by both heights and widths as follows:

Line 1, the heights as explained in Table 6.

Line 2, the same heights reduced to inches.

Line 3, $\frac{1}{4}$ of total heights in inches or the division of the heights that we have to deal with.

Line 4, the breast sizes corresponding to the heights.

Line 5, $\frac{2}{3}$ of the fourth-heights.

Line 6, $\frac{2}{3}$ of the half-breasts.

Line 7, $\frac{1}{8}$ of the half-breasts.

Line 8, the totals of Lines 5, 6 and 7, which make the quantity of the upper shoulder.

Line 9 gives practically the same results, but does away with the fractions—the upper shoulder as it is to be used.

The upper-shoulder measure is therefore composed of $\frac{2}{3}$ *of the fourth-height* $\frac{2}{3}$ *of the half-breast and* $\frac{1}{8}$ *breast.*

TABLE 25.

Line		5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
1	Heights in feet and inches																					
2	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
3	One-fourth heights in inches	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	17⅞	17¾	17⅝	17½	17⅜	17¼	17⅛	17
4	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
5	⅔rds of fourth-heights	10		10⅓		10⅔		11		11⅓		11⅔		12		11¾		11⅝		11½		11⅜
6	⅔rds of half-breasts	10		10⅔		11⅓		12		12⅔		13⅓		14		14⅔		15⅓		16		16⅔
7	⅛ of half-breasts	1⅞		2		2⅛		2¼		2⅜		2½		2⅝		2¾		2⅞		3		3⅛
8	Totals of Lines 5, 6 and 7 or upper shoulder	21⅞	22 7/16	23	23 9/16	24⅛	24 1/16	25¼	25 13/16	26⅜	26 15/16	27½	28 1/16	28⅝	28⅞	29⅛	29½	29⅞	30⅛	30½	30¾	31⅛
9	Upper shoulder, fractions evened	21⅞	22⅜	23	23½	24⅛	24¾	25¼	25⅞	26⅜	26⅞	27½	28	28⅝	28⅞	29⅛	29½	29⅞	30⅛	30½	30¾	31⅛

THE LOWER-SHOULDER MEASURE.

THIS table is for the lower-shoulder measures. The results are found in the following manner by the breast sizes, or the widths alone:

TABLE 26.

Line 1, the breast sizes.
Line 2, $\frac{2}{3}$ of the half-breasts.
Line 3, half-breasts on the halves of the square.
Line 4, stationary addition of $3\frac{1}{2}$ inches.
Line 5, the totals which give the lower shoulders.

The lower-shoulder measure is therefore composed of $\frac{2}{3}$ *and* $\frac{1}{2}$ *of the half-breast plus* $3\frac{1}{2}$ *inches.*

TABLE 26.

Line 1	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	⅔rds of half-breasts.....	10		10 2/3		11 1/3		12		12 2/3		13 1/3		14		14 2/3		15 1/3		16		16 2/3
" 3	½ breast on the halves of the square.....	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 4	Stationary addition.....	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
" 5	The lower-shoulder measure..	21	21 5/8	22 1/8	22 3/4	23 3/8	24	24 1/2	25 1/8	25 5/8	26 1/4	26 7/8	27 3/8	28	28 5/8	29 1/8	29 3/4	30 3/8	30 7/8	31 1/2	32 1/8	32 5/8

LONG MEASURES FOR OVERCOATS.

THE explanation already made in connection with the change of measures from undercoats to overcoats applies in a general way to long measures as well as to short measures, but to make it more directly applicable to those in hand we take the following example:

For a 38 breast taken over the vest we have $26\frac{3}{8}$ upper shoulder and $25\frac{5}{8}$ lower shoulder.

As an overcoat should be two sizes larger than an undercoat the measures if taken over the undercoat should be as follows:

40 breast,
$27\frac{1}{2}$ upper shoulder,
$26\frac{7}{8}$ lower shoulder.

As an overcoat should have greater ease than an undercoat and is made from heavier material $\frac{1}{4}$ inch should be added to the shoulder measures. With this addition the measures are as follows: $27\frac{3}{4}$ upper shoulder, $27\frac{1}{8}$ lower shoulder.

TABLE 27.

THIS table gives the upper-shoulder measures for overcoats according to the above deductions.

Line 1, the heights in feet and inches.

Line 2, the corresponding breast sizes for overcoats.

Line 3, the upper-shoulder measures for overcoats corresponding to the heigths of Line 1 and the widths of Line 2.

TABLE 28.

THIS table gives the lower-shoulder measures arranged on the same plan as the preceding table.

Line 1, the breast sizes. As the lower shoulder does not partake of height, none is given.

Line 2, the lower-shoulder measures for overcoats corresponding to the breast sizes in Line 1.

TABLE 27.

Line 1	Heights in feet and inches....	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Breast sizes.....	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
" 3	The upper shoulder for overcoats.	23¼	23¾	24⅜	24⅝	25½	26⅛	26⅝	27⅛	27¾	28¼	28⅞	29⅛	29⅜	29¾	30⅛	30⅜	30¾	31	31⅜	31¾	32⅛	

TABLE 28.

Line 1	Breast sizes	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
" 2	The lower shoulder for overcoats.....	22⅜	23	23⅝	24¼	24¾	25⅜	25⅞	26½	27⅛	27⅝	28¼	28⅞	29⅜	30	30⅝	31⅛	31¾	32⅜	32⅞	33¼	33⅝	

PROPORTIONATE DIVISION OF WIDTHS OF BACK, SCYE AND FRONT.

IN this connection we have given the proportionate widths of the back, the scye and the front as they are distributed at the breast line.

It is well to state, however, that these quantities do not hold good in all systems, as the angle at which a system is laid out affects the quantities, as, for instance, in a system where the breast line falls farther down on the front, the quantity increases. These divisions will only apply in systems that locate the breast line on the draft at the same angle as taken on the man, subject, however, to slight changes according to individual fancy.

For such systems these divisions will prove helpful in testing patterns and in finding just how much they vary from the type of averages.

TABLE 29.

Line 1, the breast sizes.

Line 2, average back widths for the breast sizes, which are $\frac{1}{4}$ of the half-breast plus 3 inches.

Line 3, the scye widths, which are $\frac{1}{4}$ of the half-breast plus $\frac{1}{2}$ inch.

Line 4, the totals of Lines 2 and 3, which together make the proportionate blade measures.

Line 5 locates the center of the breast (or lapel seam) when added to the quantities of Line 4 and includes $2\frac{1}{4}$ inches addition for seams and ease. It is gained on the halves of the square less $1\frac{1}{4}$ inch.

Line 6, the total widths of the fronts of single-breasted coats. They are gained from the half-breasts on the halves of the square.

Line 7, the combined quantities of Lines 2, 3 and 6, which produce the breast sizes as given in Line 1.

TABLE 29.

Line 1	Breast sizes.....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	The back width.....	5¾	6 7/8	7	7 1/8	7 1/4	7 3/8	7 1/2	7 5/8	7 3/4	7 7/8	8	8 1/8	8 1/4	8 3/4	8 1/2	8 5/8	8 3/4	8 7/8	9	9 1/8	9 1/4
" 3	The scye width.....	4 1/4	4 3/8	4 1/2	4 5/8	4 3/4	4 7/8	5	5 1/8	5 1/4	5 3/8	5 1/2	5 5/8	5 3/4	5 7/8	6	6 1/8	6 1/4	6 3/8	6 1/2	6 5/8	6 3/4
" 4	The blade.....	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16
" 5	The centre.....	6 1/4	6 1/2	6 3/4	7	7 1/4	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4
" 6	The front edge.....	7 1/2	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
" 7	Breast sizes of Lines 2, 3 and 6	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

ANATOMICAL SECTIONAL DIVISION OF THE HEIGHT OF THE HUMAN BODY.

UP to this point we have not only dealt with heights and widths in themselves, but we have also defined their relation to each other.

The rules laid down cover the range of the quantities dealt with in the practice of garment cutting and designing, which constitute a system of computation that is unique because it is more or less original, yet scientific because it is in accordance with the truth of anatomy.

The chapter in hand draws upon the general fund of knowledge of proportions, known as the "Octaval System," as applied in sculpture and painting, which has been handed down from the era of Grecian culture.

With various modifications, representing individual conceptions, it is taught in all schools of art and understood by all artists. Tailoring has only applied it, not invented it, and Dr. Wampen was undoubtedly the means of laying the foundation for its use in the production of garments.

Though tailors sometimes boast of familiarity with anatomy, we know of no anatomical proportions applicable to tailoring except those employed by artists in counterfeiting the human form.

It would surprise many to know how absolutely devoid of knowledge of proportions of the exterior of the human body physicians as a class are. The anatomy they study is of the organs and bones, and the average physician closes his "Gray's Anatomy," when his college course is ended, practically never to open it again *General education is a thing to be commended, but the confounding of anatomy with tailoring shows a lack of proper education.*

The knowledge a physician has of anatomy is as useless to a tailor in drafting garments as a knowledge of mineralogy would be to a sailor in order that he might know, should his ship be wrecked on a reef, the nature of the rock on which she struck.

THE OCTAVAL DIVISION ILLUSTRATED.

THOUGH no fixed set of rules will apply in all cases, the following divisions of the human body will be found to approximate to the general average development, so that where they do not apply, *when the subject is properly classified* (as hereafter explained) will be the exception.

The figures introduced show the profile back and front of the human form divided into eight sections. Each eighth is again subdivided into eight parts, making the total height of the body eight times eight, or 64 units. This may have been the reason why Dr. Wampen selected the 5 feet 4 inch height as the ideal, as it gives one inch to each unit and an even eight inches to each eighth part, or head, as it is sometimes called, because the head approximately composes one of the eight parts. Different systems of reckoning, however, differ on this point.

THE FIGURES.

PLATE 1.

THE divisions fall as illustrated on the figures and can be described in their least complicated form as follows:

The first eighth (or head) is the head proper, or from the top of the head to just below the chin in front and to the nape of the neck in the back, as at Line 1 on the figures.

The second head (or eighth) is the height quantity from Line 1 to Line 2, or from the chin to the nipples in front, and from the nape of the neck in the back to a point on the back opposite where the arms join the trunk at the scye level.

The third head falls from Line 2 to Line 3, or from the nipples to the navel in front, and from the scye level to the small waist in the back.

The fourth head falls from Line 3 to Line 4, or from the navel to the groin in front, and from the small waist to the heavy part of the seat in the back.

The fifth head falls from Line 4 to Line 5, or from the groin to midthigh in front, and from the seat to midthigh in the back.

The sixth head falls from Line 4 to Line 5, or from the midthigh to below the knee-cap in front, and from the mid-thigh to just below the knee, or at the top of the calf, in the back.

The seventh head falls from Line 6 to Line 7, or from below the knee-cap to opposite the lower end of the calf in front, and from the top of the calf to below the lower part of the calf in the back.

The eighth head falls from Line 7 to Line 8, or from opposite the lower calf to the bottom of the foot in front, and from below the lower calf to the bottom of the heel in the back.

All students of proportions should familiarize themselves with these divisions in order better to understand some of the explanations to follow.

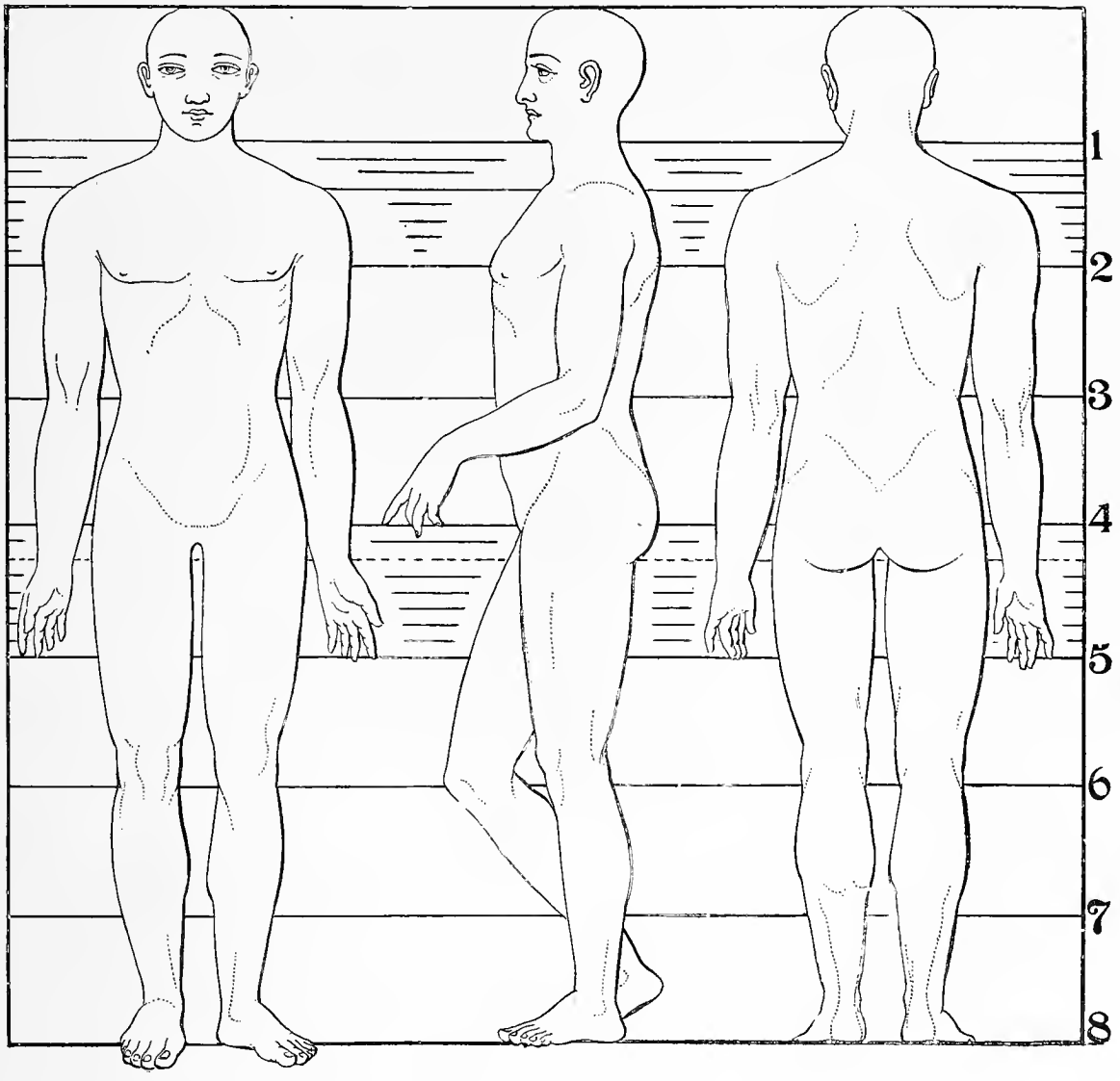

PLATE I

THE ILLUSTRATION APPLIED.

TABLE 30.

IN this table we have the application of the foregoing illustrations. It shows various exact measures of important divisions of the body for application in actual practice.

Line 1, the heights from 5 feet up to 6 feet 6 inches, which include about all the heights that are met with in the construction of garments of all kinds for men.

Line 2, the heights reduced to inches.

Line 3 shows the measures corresponding to the heights of Lines 1 and 2 for each section (or head) as between any two of the lines numbered consecutively in the accompanying figure, previously explained. As the human figure is composed of eight of these sections, the amounts in this line if multiplied by 8 will give the total height. As for example: under the 6-foot height in the line we are dealing with, we have 9 inches. This 9 if multiplied by the number of sections, or 8, gives 72 inches, the number of inches in the 6-foot height.

Line 4 shows the subdivision of each section, or head, into 8 units, and this line gives the amount of each unit. As the body has been first divided into 8 sections, as per Line 3 of this table, and as this line (4) is a further subdivision of each section into eight units, each unit becomes $\frac{1}{64}$ part of the total height. Therefore, if we multiply any of the numbers of Line 4 by 64, we gain the total height corresponding, as per Lines 1 and 2. Example: Under the 5 foot 4 inch height in Line 4 of this table we have 1 inch, and 64 times 1 inch is 64 inches, which is the number of inches contained in the 5 feet 4 inch height. Again, in the 5 feet 8 inch column of Line 4 we find $1\frac{4}{64}$, which is equal to $1\frac{1}{16}$ inch. 64 times 1 is 64 and 64 times $\frac{1}{16}$ is $\frac{64}{16}$, or 4 full inches. These 4 inches, when added to the 64 already obtained, make a total of 68 inches, which is the number of inches contained in the 5 feet 8 inch height. (The fractions in this line have not been reduced, but held at the 64ths, as 64 is the total number of units dealt with and therefore more easily seen at a glance.)

The above explanations give us a clear understanding of the component quantities of height as they actually occur in the forms dealt with. Their counterparts will be found in every form, subject to the compensating features to be explained later.

The rest of this table is the application of the above principles to locate certain divisions, and is embodied here so that it will prove convenient in connection with the quantities of Lines 3 and 4, where the sections and units are figured ready for use in finding the measure of any division of the body.

All lengths to follow are, of course, given from the nape of the neck, as we do not clothe the head proper.

TABLE 30.

Line		5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.
Line 1	Heights in feet and inches....	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.
" 2	Heights in inches.....	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78
" 3	Height of each section or eighth part.....	7 1/2	7 5/8	7 3/4	7 7/8	8	8 1/8	8 1/4	8 3/8	8 1/2	8 5/8	8 3/4	8 7/8	9	9 1/8	9 1/4	9 3/8	9 1/2	9 5/8	9 3/4
" 4	Height of each unit or sixty-fourth part.....	60/64	61/64	62/64	63/64	1	1 1/64	1 2/64	1 3/64	1 4/64	1 5/64	1 6/64	1 7/64	1 8/64	1 9/64	1 10/64	1 11/64	1 12/64	1 13/64	1 14/64
" 5	Height quantity to natural waist.....	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4
" 6	Height quantity to the seat....	22 1/2	22 7/8	23 1/4	23 5/8	24	24 3/8	24 3/4	25 1/8	25 1/2	25 7/8	26 1/4	26 5/8	27	27 3/8	27 3/4	28 1/8	28 1/2	28 7/8	29 1/2
" 7	Height quantity to the small knee.....	37 1/2	38 1/8	38 3/4	39 3/8	40	40 5/8	41 1/4	41 7/8	42 1/2	43 1/8	43 3/4	44 3/8	45	45 5/8	46 1/4	46 7/8	47 1/2	48 1/8	48 3/4
" 8	Height quantity to lower part of calf.....	45	45 3/4	46 1/2	47 1/4	48	48 3/4	49 1/2	50 1/4	51	51 3/4	52 1/2	53 1/4	54	54 3/4	55 1/2	56 1/4	57	57 3/4	58 1/2

Line 5 gives the lengths corresponding to the heights from the nape of the neck to the natural waist, or from Lines 1 and 3 of the figure, or two sections of the body, giving the natural waist length. The seam lost on sewing on the collar, or $\frac{1}{4}$ inch, may be added when this quantity is used to gain the natural waist length in actual practice. It will be noticed this line gives twice the quantities contained in Line 3 plus $\frac{1}{4}$ inch.

Line 6 covers the distance from the nape of the neck to the heavy part of the seat and the quantities of this line add another section to the two dealt with in the previous line, or from Line 1 to Line 4 of the figure.

To find the length to the seat, find the amount in Line 3 corresponding to the height dealt with, and multiply by 3 for the three sections it covers. Example: For a 5 foot 10 inch height the amount of one section is $8\frac{3}{4}$ inches. (See Line 3.) 3 times 8 is 24 inches, and 3 times $\frac{3}{4}$ inch is $2\frac{1}{4}$ inches, and 24 and $2\frac{1}{4}$ is $26\frac{1}{4}$, as in this line.

Line 7, the lengths from the nape of the neck to just below the knee, which cover five sections of the body, as from Line 1 to Line 6 of the illustration.

To find this length, first find the amount of one section in Line 3 corresponding to the height dealt with, and multiply the amount by 5. Example: For 6 feet 2 inches, the amount of one head in Line 3 is $9\frac{1}{4}$ inches. 5 times 9 is 45. 5 times $\frac{1}{4}$ is $1\frac{1}{4}$. 45 inches plus $1\frac{1}{4}$ inch is $46\frac{1}{4}$ inches, as per Line 7.

Line 8, the lengths from the nape of the neck to below the calf, as from Line 1 to Line 7, or 6 sections of the figure. To find these lengths proceed as before by finding the amount of one section corresponding to the height dealt with and multiply the same by 6. Example: For the 5 feet 6 inch height, one section is $8\frac{1}{4}$ inches, as per Line 3. 6 times 8 is 48 and 6 times $\frac{1}{4}$ is $1\frac{1}{2}$, which together make $49\frac{1}{2}$, as per Line 8.

In the preceding tables we have covered the essential points dealt with in constructing a model for the draping of the upper portion of the trunk proper. We are now ready to get the total by placing the results in a combination table that will contain the results of all of the previous deductions, giving the essential points in a condensed form for ready reference, from which lengths can be gained at a glance.

The memory can always be refreshed on how the quantities were gained by referring to the past tables.

NO CLAIM IS MADE

That this is the only work on proportions that cutters can read, understand and apply

That this is the first time results have been served up ready for consumption.

That this is the first book that has handled the subject exhaustively

That this is the first book on the subject published on this continent

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We have simply never heard of any book of the kind

THE WORKING TABLE FOR AVERAGES.

UP to this point we have gathered the raw material for the building of something tangible. Next is presented a table of averages containing all the important quantities, scientifically arranged, that are dealt with in everyday practice. In the form presented this table will prove exceedingly helpful for general work, or as a standard by which measures taken may be checked as well as a guide for all width and length quantities.

It will prove a revelation of the inaccuracy of measures to compare them with this table. Such comparison, perhaps, may at first convince any one who tries them of the inaccuracy of this table, but repeated trials will reveal the fact that measures and the individual methods of taking them are so varying that the measures can be made to describe almost any dimension desired.

A method of measuring will be acquired by this table that will be approximately accurate by checking your measures, because you will know what they ought to be and will be more careful in taking them. This can easily be proved by comparing two sets of measures taken on the same individual at different times. Very seldom are they near enough alike to give the same practical results.

TABLE 31.

THIS table does not give the dimensions for all types of men. Further on will be given other tables for other types, but it is first necessary to make ourselves familiar with the average type. The author knows of no other table so nearly complete as this. *It has all additions included.* The notations at each line explain themselves. For the minute details refer to the tables noted.

TABLE 31

CARLSTROM'S PROPORTIONS.

Line 1	See Table 3	Numbers of columns each way from Checking Column...	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12
" 2	" " 3	Heights in feet and inches....	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 3	" " 3	Heights in inches.....	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 4	" " 3	Half-heights in inches.....	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	35¾	35½	35¼	35	34¾	34½	34¼	34
" 5	" " 6	Half-heights to gain widths by	"	"	"	"	"	"	"	"	"	"	"	"	"	36½	37	37½	38	38½	39	39½	40
" 6	" " 11	Fourth-heights in inches.....	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18⅞	17¾	17⅝	17½	17⅜	17¼	17⅛	17
" 7	" " 6	Last figure and fractions of Line 5.....	0	0½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10
" 8	" " 6	Breast sizes. (Gained from Lines 5 and 7).....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 9	" " 6	Waist sizes.....	28	28¾	29½	30¼	31	31¾	32½	33¼	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52
" 10	" " 11	Scye depth. Additions included	8¼	8⅜	8⅝	8¾	9	9¼	9⅜	9½	9¾	9⅞	10⅛	10¼	10½	10⅝	10 11/16	10 13/16	10⅞	11	11 1/16	11 3/16	11¼
" 11	" " 12	Blade. Additions included...	11	11¼	11½	11¾	12	12¼	12½	12¾	13	13¼	13½	13¾	14	14¼	14½	14¾	15	15¼	15½	15¾	16
" 12	" " 13	Front-shoulder. Additions included.....	11	11¼	11⅝	11⅞	12⅛	12½	12¾	13	13¼	13⅝	13⅞	14⅛	14½	14¾	14⅞	15⅛	15⅜	15⅝	15⅞	16	16¼
" 13	" " 14	Over-shoulder. Additions included.....	15¼	15¾	16⅛	16½	16⅞	17¼	17⅝	18	18⅜	18⅝	19⅛	19½	19⅞	20¼	20⅝	21	21¼	21½	21¾	22	22¼
" 14	" " 25	Upper shoulder.....	21⅞	22⅜	23	23½	24⅛	24¾	25¼	25⅞	26⅜	26⅞	27½	28	28⅝	28⅞	29⅛	29½	29⅞	30⅛	30½	30¾	31⅛
" 15	" " 26	Lower shoulder.....	21	21⅝	22⅛	22¾	23⅜	24	24½	25⅛	25⅝	26¼	26⅞	27⅜	28	28⅝	29⅛	29¾	30⅝	30⅞	31½	32⅛	32⅝
" 16	" " 29	Widths of backs.....	6¾	6⅞	7	7⅛	7¼	7⅜	7½	7⅝	7¾	7⅞	8	8⅛	8¼	8⅜	8½	8⅝	8¾	8⅞	9	9⅛	9¼
" 17	" " 29	Widths of scyes.....	4¼	4⅜	4½	4⅝	4¾	4⅞	5	5⅛	5¼	5⅜	5½	5⅝	5¾	5⅞	6	6⅛	6¼	6⅜	6½	6⅝	6¾
" 18	" " 29	Widths of fronts to center of coats.....	6¼	6½	6¾	7	7¼	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼
" 19	" " 29	Full width of front of a single breasted coat.....	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½
" 20	" " 30	One section (⅛ height) of the human body.....	7½	7⅝	7¾	7⅞	8	8⅛	8¼	8⅜	8½	8⅝	8¾	8⅞	9	8 15/16	8⅞	8 13/16	8¾	8 11/16	8⅝	8 9/16	8½
" 21	" " 30	One unit (1/64) of the human body.....	60/64	61/64	62/64	63/64	1	1 1/64	1 2/64	1 3/64	1 4/64	1 5/64	1 6/64	1 7/64	1 8/64	1 7½/64	1 7/64	1 6½/64	1 6/64	1 5½/64	1 5/64	1 4½/64	1 4/64
" 22	" " 30	Natural waist length.....	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18⅛	18	17⅞	17¾	17⅝	17½	17⅜	17¼
" 23	" " 30	Length to the seat.....	22½	22⅞	23¼	23⅝	24	24⅜	24¾	25⅛	25½	25⅞	26¼	26⅝	27	26 13/16	26⅝	26 7/16	26¼	26 1/16	25⅞	25 11/16	25½
" 24	" " 30	Length to the small knee	37½	38⅛	38¾	39⅜	40	40⅝	41¼	41⅞	42½	43⅛	43¾	44⅜	45	45 3/16	44⅜	44 9/16	43¾	43 7/16	43⅛	43 1/16	42½
" 25	" " 30	Length to the lower calf.....	45	45¾	46½	47¼	48	48¾	49½	50¼	51	51¾	52½	53¼	54	53⅝	53¼	52⅞	52½	52⅛	51¾	51⅜	51
" 26	" " 10	Weights corresponding to heights and widths.....	107	112¼	117½	122¼	128	133½	138½	143¾	149	158½	168	177	186	193¾	200½	207¼	214	220¼	226½	231¼	238

THE CORPULENT TYPE.

Illustrated on Plate 2.

PROPERLY to understand the corpulent type has long been a problem in the trade. The corpulent form has been looked upon as an irregularity in the economy of nature, and any attempt to arrive at a method on which to base calculations has not advanced far beyond the limits of mere approximation.

It is understood that the waist sizes have gained a certain amount out of proportion to what they ought to have gained, but why they have done so is a question that has usually been answered with the rather unsatisfactory explanation that "experience has proved it to be so," an explanation that does not explain.

Experience points the direction in which we should go, but science guides us on the way. Our aim is to point out the conditions to which we must conform, to point out the laws which experience has compelled us to take notice of, and which, when understood and heeded, do not inflict the penalties that so many have paid.

Corpulency is the effect of the law of compensation. What is lacking in relative height, corresponding to the breast size, has been gained in width of waist, shoulders, hips, arm and lower extremities. The height quantities have not altered, but the width quantities have given them a new element to take into consideration in dealing with this type. If a man continued to increase in height as he increased in width, there would be no corpulency, simply large and small normal forms; but as the corpulent type increases in width while the height remains stationary, a relative increase of width develops. As this increase is gradual and develops to different degrees, corpulency is relative, hence must be considered in its relation to the other dimensions of the body. Table 32 covers the range of the height and width quantities most frequently met in actual practice, and the variations, when heights and widths differ, are also explained.

As has already been stated, corpulency occurs in different degrees. The table given is so flexible that results can be obtained in any degree, according to the ideas different operators may hold to be the most suitable for their business. As a safe average we have employed what we shall call the "triple degree" of corpulency, as will be noted in the explanations that follow:

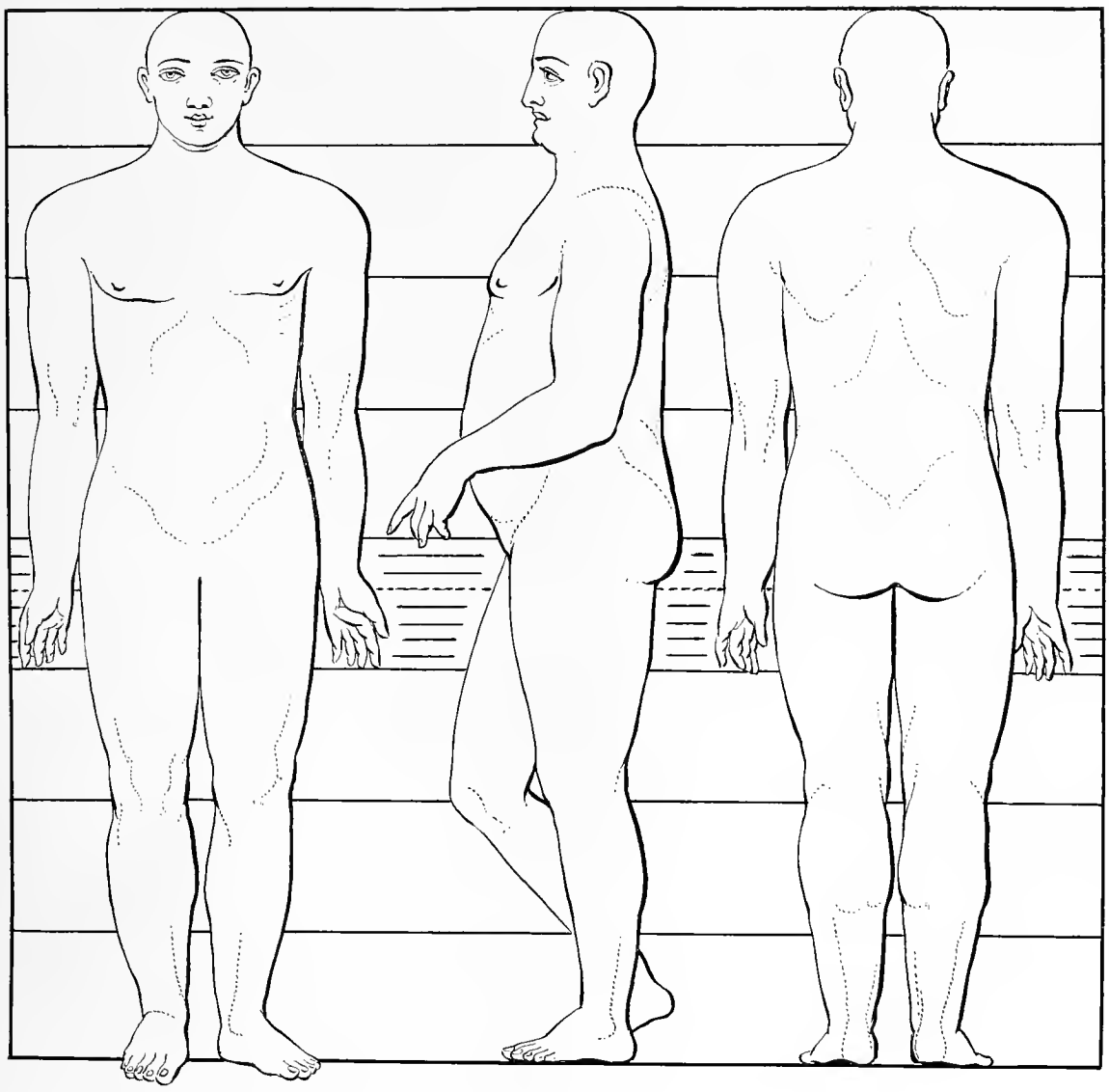


PLATE 2

TABLE 32.

THE following explanations demonstrate the method employed to gain corpulent quantities:

Line 1 gives the number of columns each way from the Checking Column.

Line 2, the heights in feet and inches. As the corpulent type is often aptly called "short and stout," it suggests, and very correctly, that the heights must not run up into the greater quantities. We have therefore made the 5 foot 10 inch height the maximum, above which point the heights decrease while the widths increase, which constitutes corpulency.

Line 3, the heights reduced to inches.

Line 4, the half-heights in inches.

Line 5, the half-heights in inches progressively, by which the breast sizes, which increase in that manner, are gained.

Line 6, one-fourth the heights, which are used to gain sectional measures by.

Line 7, the first units and the fractions of the half-heights of Line 5, as explained in Table 1.

Line 8 gives the degree of corpulency used in this table. Being three inches, it is called the "triple degree." This arrangement makes the heights three inches less for their accompanying width quantities than in the tables of averages. For instance, 38 breast was in the 5 foot 8 inch column in the preceding table. Here it has fallen in a height column three inches less, or in the 5 foot 5 inch column, which is the effect desired. A greater or less number may be used to gain a greater or less width quantity for the height dealt with. If two inches, instead of three, were used, it would be called the "double degree" of corpulency, and four inches would be called the "quadruple degree," etc. The triple degree, however, will average for corpulency as well as the quantities in Table 31 will average for proportionate forms.

Line 9, the breast sizes gained by adding Lines 5, 7 and 8. Line 8, as has just been explained, gives the increased width quantities above the average.

Line 10, the waist sizes of the corpulent form. They are gained as in Table 31 by checking by the 5 feet 8 inch column (the numbers in Line 1 give the number of columns each way from the Checking Column) and adding twice the degree given in Line 8 for quantities above the Checking Column. Below the Checking Column, deduct the number in Line 1 from the half-Checking Column height (34) and add as above the Checking Column, twice the degree given in Line 8.

Example:—To gain the waist size for a 48 breast, find the number directly above 48 in the top line. It is 7 in this instance. *Add* one-half of this, or $3\frac{1}{2}$, making $10\frac{1}{2}$ in all. Add this $10\frac{1}{2}$ to the half-height of the Checking Column (34) and you will gain $44\frac{1}{2}$. Now add to this twice the degree of corpulency, the degree being 3, and twice 3 being 6, which when added to the $44\frac{1}{2}$ makes $50\frac{1}{2}$, which represents the number of inches the waist measures for a 48 breast, when the height is as here given.

TABLE 32.

Line		5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.	5 ft. 5½ in.
" 3	Heights in inches	63	64	65	66	67	68	69	70	69½	69	68½	68	67½	67	66½	66	65½
" 4	Half-heights in inches	31½	32	32½	33	33½	34	34½	35	34¾	34½	34¼	34	33¾	33½	33¼	33	32¾
" 5	Half-heights in inches progressively	"	"	"	"	"	"	"	"	35½	36	36½	37	37½	38	38½	39	39½
" 6	Fourth-heights in inches	15¾	16	16¼	16½	16¾	17	17¼	17½	17⅜	17¼	17⅛	17	16⅞	16¾	16⅝	16½	16⅜
" 7	Last figure and fractions of Line 5	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½
" 8	"The triple degree" of corpulency	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
" 9	Breast sizes. (Gained from Lines 5, 7 and 8)	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 10	Waist sizes	35	36	37	38	39	40	41½	43	44½	46	47½	49	50½	52	53½	55	56½
" 11	Scye depth. Additions included	9⅛	9 5/16	9½	9 11/16	9⅞	10 1/16	10¼	10 7/16	10½	10⅝	10¾	10⅞	10 11/16	11	11⅛	11 3/16	11¼
" 12	Blade. Additions included	12½	12¾	13	13¼	13½	13¾	14	14¼	14½	14¾	15	15¼	15½	15¾	16	16¼	16½
" 13	Front shoulder. Additions included	12⅝	12⅞	13⅛	13 7/16	13¾	14	14 5/16	14⅝	14¾	15 1/16	15¼	15½	15¾	15 15/16	16 3/16	16 7/16	16 11/16
" 14	Over shoulder. Additions included	17½	17⅞	18¼	18⅝	19	19⅜	19¾	20⅛	20½	20⅞	21¼	21½	21¾	22	22¼	22½	22¾
" 15	Upper shoulder	24⅞	25⅜	26	26½	27⅛	27⅝	28¼	28¾	29	29⅜	29⅝	30	30¼	30⅝	30⅞	31⅛	31⅜
" 16	Lower shoulder	24½	25⅛	25⅝	26⅛	26⅞	27⅜	28	28⅝	29⅛	29¾	30⅜	30⅞	31½	32⅛	32⅝	32⅞	33⅛
" 17	Natural waist length	16	16¼	16½	16¾	17	17¼	17½	17¾	17⅝	17½	17⅜	17¼	17⅛	17	16⅞	16¾	16⅝
" 18	Length to the seat	23⅝	24	24⅜	24¾	25⅛	25½	25⅞	26¼	26 1/16	25⅞	25 11/16	25½	25 5/16	25⅛	24 15/16	24¾	24 9/16
" 19	Length to the small knee	39⅜	40	40⅝	41¼	41⅞	42½	43⅛	43¾	43 7/16	43⅛	42 15/16	42½	42 3/16	41⅞	41 9/16	41¼	40 15/16
" 20	Length to the lower calf	47¼	48	48¾	49½	50¼	51	51¾	52½	52⅛	51¾	51⅜	51	50⅝	50¼	49⅞	49½	49⅛

To find the waist for a 37 breast, *subtract* the number in the top line directly above 37 from the half-checking height (37 being located below the Checking Column). The number in the top line being 4 and the half-height dealt with 34, as usual, this leaves 30. Twice the degree of corpulency, as given in Line 8, added to 30, makes 36 as the waist size for a 37 breast corpulent.

This method gives us a very good run of sizes, but if in actual practice you have a man measuring 47 breast and only 5 feet 6 inches tall, the number in the top line directly above the breast size, which is 6, is added to one-half of its own value, making it 9. To this 9 add the number in the top line directly above the height, which is 2, and add the full amount of its own value, making it 4; this, when added to the 9, makes 13. Add this total to the waist size of the lower height to gain the waist size for the greater, or 13 to 38 in this case, making 51 inches.

Again, if the height for the same breast size is 3 inches less, or 5 feet 3 inches, the figure in the top line of the height would be 5 inches, which, being below the Checking Column, is used twice, making 10. Then the figure in the top line above the breast size, which is 6, and being above the Checking Column, the half of its own value is added, making 9 inches, and 9 and 10 make 19, which quantity is added to the waist of the lesser height, or 19 plus 35, making 54 inches as the waist size for a man of 5 feet 3 inches tall and 47 breast.

As we are adding these quantities to a waist size that already contains the "triple degree" of corpulency, the degree quantity is not used again.

Line 11, the depths of the scye by heights and widths, as explained in Table 11.

Line 12, the blade measures corresponding to the width quantities in Line 9.

Line 13, the front shoulders by heights and widths, as explained in Table 13.

Line 14, the overshoulder measures by heights and widths, as explained in Table 14, which, like the rest of the short measures, vary according to the fluctuations of the height and width quantities.

Line 15, the upper shoulder measures by heights and widths, as explained in Table 25.

Line 16, the lower shoulder measures by widths only, as explained in Table 26.

Lines 17, 18, 19 and 20 are the anatomical divisions corresponding to the heights given in this table, as explained in Table 30, and give the lengths to the natural waist, the seat, the small knee and the lower calf, respectively.

Proportions are not a cure-all. They will meet every requirement that comes within their sphere, but will neither provide for unequal heights of shoulders nor for unequal lengths of legs . . . . . .

THE SLENDER FORM.

Illustrated on Plate 3.

THE slender form is a type by itself and quite as perplexing to handle as the opposite extreme, the corpulent. What it has gained in height has been lost in width. This loss and gain make a problem for the student.

The typical slender form has a sloping shoulder, but very decided exceptions to this rule are not unusual. Of these exceptions we shall hear later.

The table accompanying this chapter lays out the length quantities in proportion to the total heights and widths according to the width surfaces traversed, which is indeed the way in which this type develops.

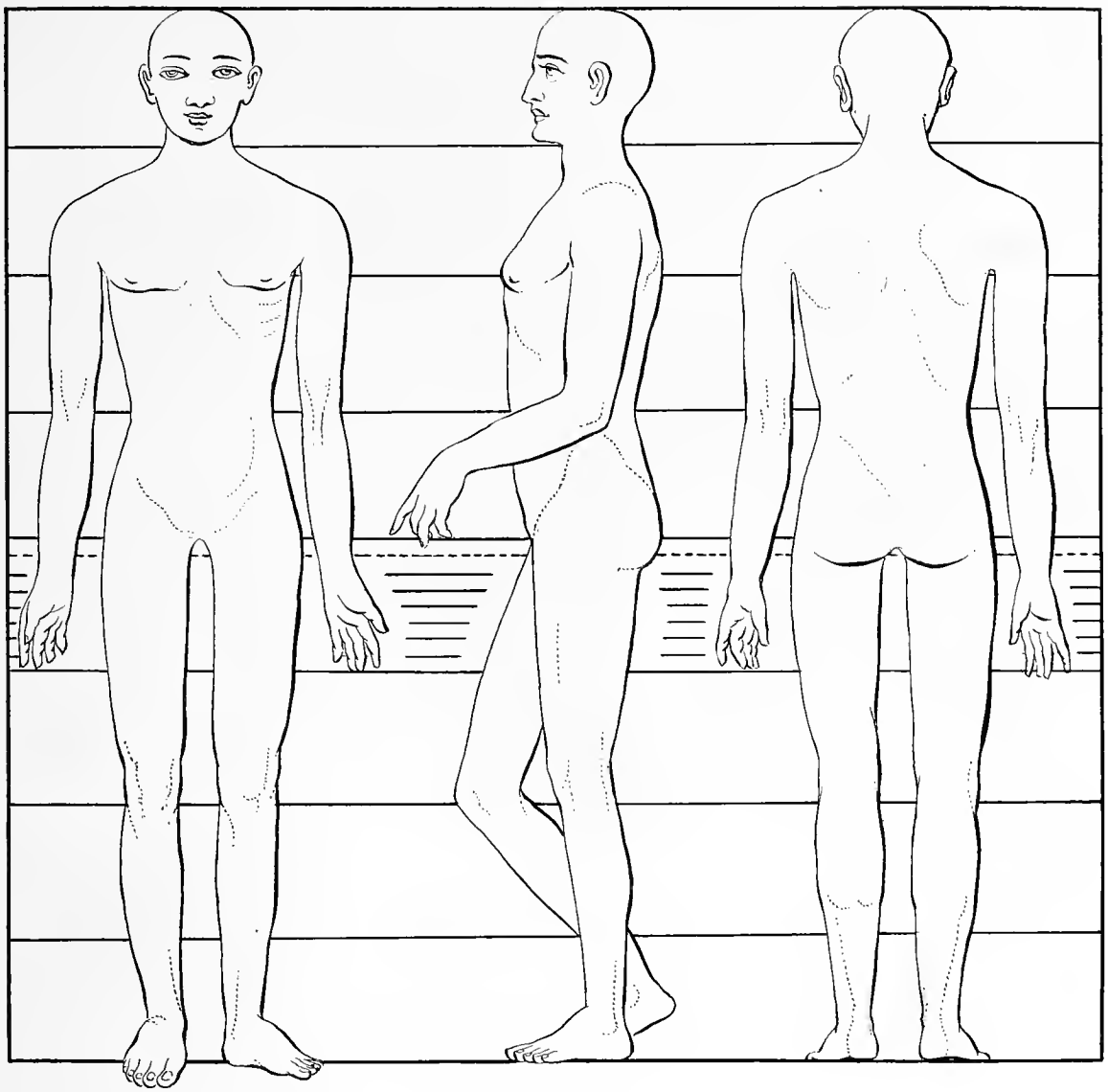


PLATE 3

TABLE 33.

THE component parts of this table for the slender form are the following:

Line 1, the number of columns each way from the Checking Column.

Line 2, the heights in feet and inches.

Line 3, the heights reduced to inches.

Line 4, the half-heights in inches.

Line 5, one-fourth heights in inches.

Line 6, the first units and fractions of the half-heights in Line 4. The amounts in this line, when added to the half-heights, give the breast quantities for normal forms, but in the slender form the widths have decreased, more or less, according to the degree of slenderness.

Line 7 gives the degree of slenderness, and we have employed the "triple degree" as a representative one of this class. When the amount of this line is deducted from the totals of Lines 4 and 6 we gain the breast sizes for the slender forms, which reduce the widths a like amount, making them three sizes less than the normal for the normal heights, or reducing the widths while leaving the heights normal.

Line 8, the breast sizes, which are gained by adding Lines 4 and 6, as usual, but reducing them for slenderness the amounts of the "triple degree" in Line 7.

Line 9 introduces quantities that may be used in gaining a graduated increase of waist, which increase and decrease an equal amount respectively above and below the Checking Column.

Line 10 gives the waist sizes, which may be held at an even increase of one inch by *deducting* the amount in the top line, together with the degree in Line 7, from the half-heights of the Checking Column up to the checking heights, and by *adding* the same amounts to the half-heights of the Checking Column above the checking heights, but a more gradual increase has been adopted for the quantities in this line, which are gained as follows:

Above the Checking Column. Find the number in the top line of the column containing the breast size dealt with. Add one-half of its own value to the half-heights of the Checking Column, also the amount of Line 9, and deduct from the total the first unit of the half-heights in Line 6. The result is the waist size above the Checking Column.

Example:—43 breast. The number in the top line is 8. One-half of 8 added to itself makes 12. Add to this the quantity in Line 9, or the $1\frac{3}{4}$ inch below 43, and you have $13\frac{3}{4}$, which when added to 34 (or the half of the checking height) makes $47\frac{3}{4}$. Deduct from this the first unit, or the 8 inches in Line 6, and the remainder is $39\frac{3}{4}$ inches, or the waist size of a slender 43 breast of 6 feet 4 inches in height.

Below the Checking Column. Find the number in the top line of the column containing the breast dealt with. (Do not add the half to itself.) Deduct it from the half-height of the Checking Column, also the first unit of Line 6 and the amount of Line 9. The result gives waist sizes below the Checking Column.

TABLE 33.

		5	4	3	2	1	0	1	2	3	4	5	6	7	8	9
Line 1	Numbers of columns each way from checking column															
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
" 3	Heights in inches	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
" 4	Half-heights in inches	31½	32	32½	33	33½	34	34½	35	35½	36	36½	37	37½	38	38½
" 5	Fourth-heights in inches	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18½	18¾	19	19¼
" 6	Last figure and fraction of Line 4	½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½
" 7	"The triple degree" of slenderness	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
" 8	Breast sizes. (Gained from Lines 4 and 6 less Line 7)	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 9	Arbitrary additions to gain waist sizes by	1	¾	½	¼	0	1	0	¼	½	¾	1	1¼	1½	1¾	2
" 10	Waist sizes	26½	27¼	28	28¾	29½	30¼	31	32¼	33½	34¾	36	37¼	38½	39¾	41
" 11	Scye depth. Additions included	8 7/16	8 5/8	8 13/16	9	9 3/16	9 3/8	9 13/16	9 3/4	9 15/16	10 1/8	10 5/16	10½	10 11/16	10 14/16	11 1/16
" 12	Blade. Additions included	11	11¼	11½	11¾	12	12¼	12½	12¾	13	13¼	13½	13¾	14	14¼	14½
" 13	Front shoulder. Additions included	11 1/8	11 7/16	11¾	12	12¼	12 9/16	12⅞	13⅛	13 7/16	13¾	14	14¼	14 9/16	14⅞	15⅛
" 14	Over shoulder. Additions included	15½	15⅞	16¼	16⅝	17	17⅜	17¾	18⅛	18½	18⅞	19¼	19⅝	20	20⅜	20¾
" 15	Upper shoulder	22½	23	23⅝	24⅛	24¾	25¼	25⅞	26⅜	27	27½	28	28⅝	29¼	29¾	30¼
" 16	Lower shoulder	21	21⅝	22⅛	22¾	23⅜	24	24½	25⅛	25⅝	26¼	26⅞	27⅜	28	28⅝	29⅛
" 17	Natural waist length	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18½	18¾	19	19¼	19½
" 18	Length to the seat	23⅝	24	24⅜	24¾	25⅛	25½	25⅞	26¼	26⅝	27	27⅜	27¾	28⅛	28½	28⅞
" 19	Length to the small knee	39⅜	40	40⅝	41¼	41⅞	42½	43⅛	44¾	44⅜	45	45⅝	46¼	46⅞	47½	48⅛
" 20	Length to the lower calf	47¼	48	48¾	49½	50¼	51	51¾	52½	53¼	54	54¾	55½	56¼	57	57¾

Example :—33 breast. Deduct the amount of the top line, plus the amount in Line 6, plus the amount in Line 9, from the half of the checking height. The amounts are respectively 2, 3 and $\frac{1}{4}$, which together make $5\frac{1}{4}$, and when deducted from 34 leave $28\frac{3}{4}$ as the waist size for a slender 33 breast of 5 feet 6 inches height.

In actual practice, when the heights and widths differ from the arrangement given in this table, the waist sizes may be found as follows :

If we have a 36 breast for a man 6 feet 1 inch tall, find the number of columns that the 6 feet 1 inch height is from the 36 breast column, in this case 4 columns, as at the 40 breast. Count the same number of columns below 36, or to 32 breast. The waist size located half-way between the 36 and 32, as at 34 in this case $29\frac{1}{2}$ inches, is the corresponding waist to a 36 breast and 6 feet 1 inch height.

Again, if we have a 39 breast and a 5 feet 10 inch height, find the number of columns that separate them. As only one column separates them in this case, use the waist size in that column ($33\frac{1}{2}$), but add $1\frac{1}{4}$ for each inch difference in height above the 5 feet 10 inch height, or $\frac{3}{4}$ inch below it, or the amount the waist gains for each size breast. As in this case only one column is to be accounted for, add $1\frac{1}{4}$ inch to $33\frac{1}{2}$, which gives a $34\frac{3}{4}$ inch waist for a 39 breast, 5 feet 10 inches tall as the increase of width and decrease of height partake of the normal.

Line 11, the depths of scye for the slender form by heights and widths, as explained in Table 11.

Line 12, the blade measures corresponding to the width quantity, as explained in Table 12.

Line 13, the front shoulders by height and width, as explained in Table 13.

Line 14, the over-shoulder measures by heights and widths, as explained in Table 14.

Line 15, the upper-shoulder measures by heights and widths, as explained in Table 25.

Line 16, the lower-shoulder measures by widths only, as per Table 26.

Lines 17, 18, 19 and 20 are the anatomical divisions corresponding to the heights given, as explained in Table 30. They give the lengths to natural waist, seat, small knee and lower calf, respectively.

THE SLEEVE.

THE sleeve problem is an interesting and at the same time an intricate one. The length of the sleeve is, of course, governed by the length of the arm, and the length of the latter bears a relation to the total height of the body.

The basis from which we can reason most satisfactorily is the distance from finger tip to finger tip when the arms are raised from the sides of the body to a horizontal position. In other words, if a person stands against a wall and places the tip of the middle finger of the left hand at a certain point, and while still holding that finger as stated places the tip of the middle finger of the right hand as far from the left as he can reach without straining, while both hands are even with the shoulders, the distance thus spanned will average 2 to 3 inches more than the total height. This apparently would give the length of the sleeve, if the length of the hand were deducted, and so it would if the arms were always carried in that position; but as that is not the case, more length must be gained to correspond to the amount that is lost in angles when the arms are bent. This has been realized in a general way by tailors of all times, and to gain the loss of these angles the sleeve length has always been taken with the elbow bent to describe a right angle.

If a tape is passed over the back and the ends held in each hand, while the arms are held straight in front of the person at the height of the shoulder, the tape will not register any increase over the tip-to-tip measurement if it passes under the arms. *This is the inside measurement.* But if the arms are bent at a right angle and the tape is passed outside of the elbow bend, it will require the letting out of the tape about 6 inches. *This is the outside measurement.* As the arms assume the bent position in almost everything we do, even in writing, we have the outside measurement to deal with when figuring on the length of the sleeve.

Figuring from the height as a basis, we have the tip-to-tip span, which is 3 inches greater than the height, and a provision for angles of 6 inches to add to the height, or 9 inches in all, added to the height as a basis for our sleeve length. This includes the entire length of the hand to the tips of the fingers.

The foregoing deals only with the dimensions of the body direct and allowances for positions assumed, but does not deal with the losses met with in the process of manufacture, such as for seams and ease.

THE NORMAL SLEEVE.

TABLE 34.

THIS table exemplifies and gives the results of the above deductions in the following manner, as applied to the normal sleeve:

Line 1, the breast sizes as per Table 31.

Line 2, the corresponding heights for average forms in feet and inches.

Line 3, the same heights reduced to inches.

Line 4 has added 3 inches to the total height, which, as explained above, is usually the amount that the height is less than the measurement from finger-tip to finger-tip.

Line 5 gives 6 inches additional to the quantities of Line 4, which provide for the outside measurements of angles.

Line 6 gives the half-quantities of Line 5. These quantities are the measures from the center of the back to the tip of the finger of the arm measured, and while they include the length of the hand as given we now approach the sleeve length as dealt with in tailoring, as we only prepare our pattern for one side and gain the two sides by cutting the cloth double.

Line 7 has deducted from Line 6 the lengths of the hand less $1\frac{1}{2}$ inch in this manner. The length from the tip of the finger to the wrist joint is $\frac{1}{8}$ of the total height (or one head), but as a sleeve that only comes to the wrist is too short, as all tailors can testify, more length must be gained, hence this line has $1\frac{1}{2}$ inch added after the length to the wrist has been deducted.

Example:—5 feet 8 equals 68 inches. To this add 9 inches (3 inches for the excess of length of the outstretched arms over the height, and 6 for the outside measurements of the angles), making in all 77 inches. One-half of 77 is $38\frac{1}{2}$. Deduct $\frac{1}{8}$ of the height, as per Line 20 of Table 31, or $8\frac{1}{2}$ inches, from $38\frac{1}{2}$, leaving 30 inches as the length from the center of the back to the wrist. To extend the length from the wrist to the hand, add $1\frac{1}{2}$ inch, as explained in this connection and you have the result, $31\frac{1}{2}$ inches, as per Line 7 of this table.

Line 8 gives 1 inch added for seams and make-up to the quantity gained in taking the measure, as per Line 7. This 1 inch includes all additions for the finished pattern and will correspond to the quantities given in Table 31.

It may be well here to refer to what seems to many an eccentricity of nature which gives to people of the same height varying lengths of arms. The fact is that the length of the arm from the center of the back to the tips of the fingers is, approximately, the same for all people of the same height; but if a slender man, measuring a certain amount from the back center to the tips, should take on flesh, that same measurement would not diminish, but the back would widen at the expense of the length of the arm from the shoulders down. Therefore the outseam measurement would remain the same, but the forearm measurement would decrease. This is the reason why attempts at laying down corresponding proportions for both the inside and outside sleeve lengths have always been found unsatisfactory.

TABLE 34.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11⅝ in.	5 ft. 11 in.	5 ft. 10⅜ in.	5 ft. 10 in.	5 ft. 9⅜ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 3	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 4	The tip-to-tip measurement	63	64	65	66	67	68	69	70	71	72	73	74	75	74½	74	73½	73	72½	72	71½	71
" 5	Angle allowance	69	70	71	72	73	74	75	76	77	78	79	80	81	80½	80	79½	79	78½	78	77½	77
" 6	One-half of Line 5	34½	35	35½	36	36½	37	37½	38	38½	39	39½	40	40½	40¼	40	39¾	39½	39¼	39	38¾	38½
" 7	One section less 1½ inch. Lengths as taken	28½	28⅞	29¼	29⅝	30	30⅜	30¾	31⅛	31½	31⅞	32¼	32⅝	33	32 13/16	32⅝	32 5/16	32¼	32 1/16	31⅞	31 11/16	31½
" 8	Lengths with all additions included	29½	29⅞	30¼	30⅝	31	31⅜	31¾	32⅛	32½	32⅞	33¼	33⅝	34	33 13/16	33⅝	33 5/16	33¼	33 1/16	32⅞	32 11/16	32½

SLEEVES FOR CORPULENT FORMS.

AS the outseam length of sleeves corresponds to the height, the method as explained in the previous table is also applicable to corpulent forms.

TABLE 35

GIVES lengths corresponding to the quantities in Table 32 as follows:

Line 1, the breast sizes, as per Table 32.

Line 2, the heights corresponding in feet and inches.

Line 3, the sleeve lengths as taken without additions for make-up.

Line 4, the total lengths for the corpulent form with all additions for seams and make-up.

When the degree of corpulency is extreme the decrease in height will give a decreased length of sleeve.

SLEEVES FOR SLENDER FORMS.

THE outside length of the sleeve for a slender form is also relative to the height of the subject, and, therefore, is obtained as explained in the general remarks preceding and in Table 34. The quantities given herewith will correspond to those in Table 33.

TABLE 36.

Line 1, the breast sizes as per Table 33.

Line 2, the heights corresponding to the above breast sizes for the slender forms.

Line 3, the sleeve lengths as taken without additions.

Line 4, an addition of 1 inch for seams and make-up as explained in connection with Table 34.

TABLE 35.

Line 1	Breast sizes	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.	5 ft. 5½ in.
" 3	Lengths as taken	29 5/8	30	30 3/8	30 3/4	31 1/8	31 1/2	31 7/8	32 1/4	32 1/16	31 7/8	31 11/16	31 1/2	31 5/16	31 1/8	30 15/16	30 3/4	30 9/16
" 4	Lengths with all additions included	30 5/8	31	31 3/8	31 3/4	32 1/8	32 1/2	32 7/8	33 1/4	33 1/16	32 7/8	32 11/16	32 1/2	32 5/16	32 1/8	31 15/16	31 3/4	31 9/16

TABLE 36.

Line 1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
" 3	Lengths as taken	29 5/8	30	30 3/8	30 3/4	31 1/8	31 1/2	31 7/8	32 1/4	32 5/8	33	33 3/8	33 3/4	34 1/8	34 1/2	34 7/8
" 4	Lengths with all additions included	30 5/8	31	31 3/8	31 3/4	32 1/8	32 1/2	32 7/8	33 1/4	33 5/8	84	34 3/8	34 3/4	35 1/8	35 1/2	35 7/8

FOREARM LENGTH OF SLEEVES.

AS many cutters prefer to use the forearm, or underarm, length of sleeves, there are given herewith lengths and explanations of how to obtain them according to the class or type of forms to which the sleeves apply.

Refer back to Plate 1, accompanying Table 30, in which is given the anatomical sectional divisions of the human body. As will be noticed, the inside length of the arm and hand combined extends over three sections of the body, as from Line 2 to Line 5 in normal forms. We deduct one section, or head, to the wrist, and have two sections remaining, to which we have to add 1½ inch, as explained for Table 34. This leaves the forearm length two sections (as per Line 20, Table 31) plus 1½ inch for normal forms.

NORMAL.

TABLE 37.

Line 1, the normal breast sizes.

Line 2, the heights corresponding.

Line 3, the forearm lengths for normal forms, which are composed of two sections of lengths of the body plus 1½ inch.

CORPULENT.

IT was made plain in introducting the subject of sleeves that in corpulent forms the underarm length decreases as the back width increases. The decrease is nearly equal to one-fourth the degree of corpulency, to correspond to the quantities given in Table 32, in which the triple degree of corpulency (or 3 inches) is used. One-fourth would be ¾ inch, which is the amount of the decrease given in the table accompanying.

TABLE 38.

Line 1, the corpulent breast sizes.

Line 2, the heights corresponding.

Line 3, the forearm lengths of sleeve, which in this case are two sections of length plus 1½ inch, less one-fourth the degree of corpulency, or ¾ inch.

SLENDER.

AN increased forearm length is the natural accompaniment of the slender form, as the decreased widths and increased heights mean a narrower back and a relatively larger underarm length to maintain the total quantity. The increase may be safely made one-fourth the degree of slenderness, or the opposite of corpulency.

TABLE 39.

Line 1, the slender breast sizes.

Line 2, the corresponding heights.

Line 3, the forearm lengths plus 1½ inch plus one-fourth of the triple degree of slenderness, or ¾ inch in this case.

TABLE 37.

Line																						
1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 2	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 3	The forearm lengths	16½	16¾	17	17¼	17½	17¾	18	18¼	18½	18¾	19	19¼	19½	19⅜	19¼	19⅛	19	18⅞	18¾	18⅝	18½

TABLE 38.

Line																		
1	Breast sizes	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.	5 ft. 5½ in.
" 3	The forearm lengths	16½	16¾	17	17¼	17½	17¾	18	18¼	18⅛	18	17⅞	17¾	17⅝	17½	17⅜	17¼	17⅛

TABLE 39.

Line																
1	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 2	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
" 3	The forearm lengths	18	18¼	18½	18¾	19	19¼	19½	19¾	20	20¼	20½	20¾	21	21¼	21½

VESTS.

Lengths and Openings.

A SATISFACTORY vest length and opening based on something tangible will prove a welcome innovation to cutters and designers, whether for use in retail practice in gaining a certain length when an uncertain measure is given, or for a working principle when a set of vest patterns is to be produced. Arbitrary lengths, even when fairly satisfactory, do not mean anything, and always leave an element of doubt as to whether all requirements have been fully met. Neither height nor width alone will give a length flexible enough for different sizes of men of varying heights. As vest lengths partake of both, one element must modify the other.

The rule here given is as simple as it is scientific and is best expressed in the following couplet:

One-fourth the height and one-fourth of the breast,
When added together, give the length of the vest.

The length gained in this manner includes all additions for seams and making up; but should the customers of a certain trade be educated by past practice to a longer or a shorter vest, a small arbitrary quantity may either be added to or deducted from the result obtained as explained.

NORMAL.

TABLE 40.

Line 1, the heights in feet and inches.

Line 2, the same heights in inches.

Line 3, one-fourth the above heights in inches.

Line 4, the breast sizes for normal forms.

Line 5, one-fourth the breast sizes.

Line 6, the results of adding Lines 3 and 5, which are the full lengths of vests corresponding to the heights and widths given.

Line 7, the openings, which are one-half of the lengths given in Line 6 less 1 inch. This amount may be more or less to gain the opening desired, as fashions change from season to season.

When the waist increases it requires an additional length to go over the rounded surface of such forms. This increase will take care of itself if the lengths, as here given, are applied on a direct line, as in the normal. The waist increase extending beyond the direct line will give a curving line to the front, which, together with the continuation of the bottom slant in front of the direct line, will give the additional quantity needed.

The foregoing will meet all ordinary requirements, even when the waist size enters in as an element of length; but those who prefer to employ the waist element as a factor in determining vest lengths can, instead of one-fourth breast, use one-eighth breast and for the quantity lost substitute one-eighth waist. This will

TABLE 10.

Line 1	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 2	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 3	One-fourth heights in inches .	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	17⅞	17¾	17⅝	17½	17⅜	17¼	17⅛	17
" 4	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 5	One-fourth breast sizes	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½
" 6	Full lengths. (By Lines 3 and 5)	22½	23	23½	24	24½	25	25½	26	26½	27	27½	28	28½	28⅝	28¾	28⅞	29	29⅛	29¼	29⅜	29½
" 7	The openings	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½	12¾	13	13¼	13⅜	13¾	13⅞	13½	13⅝	13¾	13⅞	13¾

give a slight decrease in the sizes where the waist is less than the breast and a corresponding increase when the waist is larger than the breast.

The flexibility gained, however, is hardly in proportion to the increased labor it involves in figuring vest lengths.

CORPULENT.

TABLE 41.

THE quantities in this table correspond to those given in Table 32, which are for the corpulent sizes. The method of gaining the results is the same as explained in the previous table.

Line 1, the heights in feet and inches.

Line 2, the heights in inches.

Line 3, one-fourth of the heights.

Line 4, the breast sizes corresponding to the above heights for the degree of corpulency given in Table 32.

Line 5, one-fourth of the breast sizes.

Line 6, the full lengths gained by adding one-fourth height in Line 3 to one-fourth of breast in Line 5, and gives the full lengths with additions included.

Line 7, the openings corresponding to the lengths, which are one-half the lengths less 1 inch, and may be made more or less.

SLENDER.

TABLE 42.

THE heights and widths in this table are the same as those given in Table 33 for the slender forms. They are gained as explained in Table 40.

Line 1, the heights in feet and inches.

Line 2, the heights in inches.

Line 3, one-fourth of the heights.

Line 4, the breast sizes corresponding to the above heights for the slender forms.

Line 5, one-fourth the breast sizes.

Line 6, the full lengths gained from one-fourth of the height in Line 3 and one-fourth of the breast sizes in Line 5.

Line 7, the openings corresponding to the above lengths, which are gained from one-half the lengths less 1 inch, but can be made more or less to suit conditions.

TABLE 41.

		5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.	5 ft. 5½ in.
Line 1	Heights in feet and inches																	
" 2	Heights in inches	63	64	65	66	67	68	69	70	69½	69	68½	68	67½	67	66½	66	65½
" 3	One-fourth heights in inches	15¾	16	16¼	16½	16¾	17	17¼	17½	17⅜	17¼	17⅛	17	16⅞	16¾	16⅝	16½	16⅜
" 4	Breast sizes	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 5	One-fourth breast sizes	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½	12¾	13
" 6	Full lengths. (By Lines 3 and 5)	24¾	25¼	25¾	26¼	26¾	27¼	27¾	28¼	28⅜	28½	28⅝	28¾	28⅞	29	29⅛	29¼	29⅜
" 7	The openings	11⅜	11⅝	11⅞	12⅛	12⅜	12⅝	12⅞	13⅛	13 3/16	13¼	13 5/16	13⅜	13 7/16	13½	13 9/16	13¾	13⅞

TABLE 42.

		5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
Line 1	Heights in feet and inches															
" 2	Heights in inches	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
" 3	One-fourth heights in inches	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18½	18¾	19	19¼
" 4	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 5	One-fourth breast sizes	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11
" 6	Full lengths. (By Lines 3 and 5)	23¼	23¾	24¼	24¾	25¼	25¾	26¼	26¾	27¼	27¾	28¼	28¾	29¼	29¾	30¼
" 7	The openings	10⅝	10⅞	11⅛	11⅜	11⅝	11⅞	12⅛	12⅜	12⅝	12⅞	13⅛	13⅜	13⅝	13⅞	14⅛

TROUSERS.

General Remarks.

PERHAPS the most difficult part of the human body, considered from the standpoint of proportions, is that part with which the tailor has to deal in making trousers; at least, rules given in the past, intended as guides, have never corresponded to the surface development of that part.

Nature has in all cases, excepting those caused by accident or deformity, framed certain laws. She has classified these cases into types, but those who have attempted to codify her laws have disregarded her classifications.

While exceptions to these laws exist, they do not prove that the laws of nature are invalidated; in fact, one simple rule which proves effective in determining leg lengths is known to almost every purchaser of ready-made clothing; namely, holding the legs of the trousers out at arm's length. While we do not wish to dwell on this particular phase, it is referred to as a suggestion of the relation between the arm and leg lengths, which is recognized by laymen. It might be stated that the method could be used to advantage if it were applied scientifically. The truth it implies is that relative proportions are a fact, and that the laws governing them are well defined. Results gained by observing them are pretty near correct. Trouble results only when we make arbitrary rules contrary to the needs of the conditions existing.

The average man is one type, and the rules governing the leg lengths of this type do not apply directly to the corpulent, nor to the slender types, which are governed by rules applicable only to those types.

But let us get down to actual measurements, behind which no rules can go. Out of a group of 200 normal men an average height of $68\frac{6}{24}$ inches was found, for which height an average leg length of $32\frac{5}{24}$ inches resulted, or a double leg length of $64\frac{10}{24}$ inches. Out of a group of corpulent forms, with a waist measurement ranging from 3 inches up to 7 inches larger than proportionate, the heights averaged $68\frac{4}{6}$ inches and the double leg length $60\frac{3}{6}$ inches. A similar number of slender men with waist sizes less than normal averaged $68\frac{5}{10}$ inches height and $66\frac{4}{10}$ inches double leg length. This goes to prove that the average normal double leg length is approximately 4 inches less than the height, while in the corpulent it is 8 inches less and in the slender forms 2 inches less, increased or decreased by the degree of corpulency or slenderness existing. This again suggests that the bone structure does not change as the form evolves from one type into another, and that the difference in types is really only a matter of increased width quantities. As width is gained, or, in other words, flesh taken on, the increase of width is made at the expense of the leg length, which is made up in the increase of the waist rise.

Therefore, in the strictly normal type, the leg length and waist rise partake only of the height quantity; but just as soon as width is gained, width will have to be taken into consideration.

Learn to swim instead of devoting all your energy to find a suitable life preserver . . . . . .

AVERAGE TROUSERS DIMENSIONS.

TABLE 43.

THIS table contains average (not normal) trousers dimensions. The strictly normal form is best expressed by the quantities in the Checking Column.

Line 1, the checking numbers each way from Column 0.

Line 2, the height of averages in feet and inches, as per Table 31.

Line 3, the above heights in inches.

Line 4, the half-heights.

Line 5, the breast sizes as a guide to the amount of corpulency dealt with.

Line 6, the average waist sizes, as per Table 31.

All the above quantities are the same as given in Table 3.

Line 7 has the seat sizes, which are gained in the following manner:

For the Checking Column, 0, make the seat 1 inch larger than the breast size, or 39 inches.

Above the Checking Column, add the number in the top line to 39, and place the result in the same column as the number in the top line is located.

As the seat is found to gain in the excessivcly large sizes, $1\frac{1}{4}$ inch instead of 1 inch has been added to each column above the 6 feet height, while below it all are held at even inches.

Line 8 is $\frac{1}{8}$ inch for each column above the Checking Column. It also represents $\frac{1}{4}$ inch for each inch the waist has gained upon the breast, above the normal difference found in Column 0. The quantities given below the Checking Column are $\frac{1}{8}$ inch for each column. Above the Checking Column they represent $\frac{1}{2}$ inch for each inch the waist has gained upon the breast above the normal difference found in Column 0.

Line 9, inseam lengths on the basis of 2 inches less than the half-height; that is, the double leg-length is 4 inches less than the total height, as explained in the general remarks.

Line 10, the leg-lengths for the sizes in which the increased width quantities have decreased the length quantities, as referred to in. the general remarks. The amount of decreased length is gained by deducting the quantity in Line 8.

Line 11 gives the waist rises by adding 2 inches (or the amount the normal leg-length is less than the half-height) to one section, or $\frac{1}{8}$ of the total height corresponding (as per Line 30 in Table 31). To this $\frac{1}{8}$ height plus 2 inches, *add* $\frac{1}{4}$ inch for each inch the waist has gained on the breast from the normal quantity, as per the quantities above the Checking Column of Line 8. Below the Checking Column, find the $\frac{1}{8}$ total height plus 2 inches as above, but instead of adding, as above, *deduct* from the quantities gained the $\frac{1}{8}$ inch for each number in the top line. This gives the side rise as shown in this line.

TABLE 43.

Line		8	7	6	5	4	3	2	1	0	1	2	3	4	5¼	6½	7¾	9	10¼	11½	12¾	14
" 2	Average heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
" 3	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 4	Half-heights in inches	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	35¾	35½	35¼	35	34⅝	34½	34¼	34
" 5	Breast sizes. (As a guide to degree of corpulency)	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 6	Waist sizes	28	28¾	29½	30¼	31	31¾	32½	33¼	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52
" 7	Seat sizes	31	32	33	34	35	36	37	38	39	40	41	42	43	44¼	45½	46¾	48	49¼	50½	51¾	53
" 8	Indicators of corpulency	1	⅞	¾	⅝	½	⅜	¼	⅛		⅛	¼	⅜	½	⅝	¾	⅞	1	1⅛	1¼	1⅜	1½
" 9	Proportionate inseam-lengths	28	28½	29	29½	30	30½	31	31½	32	32½	33	33½	34	33¾	33½	33¼	33	32¾	32½	32¼	32
" 10	Corpulent inseam-lengths	"	"	"	"	"	"	"	"	"	"	"	"	"	33⅛	32¾	32⅜	32	31⅝	31¼	30⅞	30½
" 11	Side waist-rise	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11 9/16	11⅝	11 11/16	11¾	11 13/16	11⅞	11 15/16	12
" 12	Front waist-rise	"	"	"	"	"	"	"	"	"	10⅞	11¼	11⅝	12	12 3/16	12⅜	12 9/16	12¾	12 15/16	13⅛	13 5/16	13½
" 13	Bases for knee-sizes	15¾	16¼	16¾	17¼	17¾	18¼	18¾	19¼	19¾	20¼	20¾	21¼	21¾	21⅞	22⅛	22 5/16	22½	22 13/16	22⅞	23 3/16	23½
" 14	Bases for bottom sizes	14⅞	15¼	15⅜	15⅝	15⅞	16⅛	16⅜	16⅝	16⅞	17⅛	17⅜	17⅝	17⅞	17 5/16	18⅛	18 3/16	18¼	18 9/16	18 7/16	18 11/16	18¾

Example: The normal, 5 feet 8:

One head	8½ inches
2 inches added	10½ inches

As the quantities in this column are normal, there is no addition or reduction made from this amount in this table. The same height in column 14 would look like this:

One head	8½ inches
Addition	2 inches
Total	10½ inches

The breast is 50, for which the waist would be 46 for the purpose of calculation, but the waist given is 52, hence a gain of 6 inches. ¼ inch for each inch gain makes 1½ inch. This added to the 10½ inches makes 12 inches, as shown.

Below the Checking Column.

Example:—5 feet 4 inches:

One head	8 inches
Addition	2 inches
Total	10 inches

Deduct the amount in Line 8, which is ½ inch, leaving 9½ inches, as shown.

Line 12 gives the front rises in the corpulent sizes by adding to the front above the side rise as much as the amount given in Line 8.

Line 13 gives the basis for knee widths. They are gained from one-fourth height and one-fourth seat less 7 inches.

By making the stationary quantity more or less, a greater or less width is gained.

Line 14 gives the basis for bottom widths, which may be increased or decreased. They are gained from one-half the knee plus 7 inches. The stationary quantity if increased or decreased will give more or less bottom width as desired.

The front rise, as per Line 12, may approximately be gained by taking the half-height, the full waist and the full seat and dividing the total by a given number, which may be more or less. The division is not important as long as the quantity divided partakes of all of the elements that go to make up the waist rise.

If the sum of the half-height, the full waist and the full seat measure is divided by 11 it will give quantities slightly less than those given in this table, while if it is divided by 10 it becomes slightly more. This suggests a ready rule by which to gain the front rise of trousers that may be used to suit individual ideas.

If Table 43 is used as a manufacturing list for stock, it is well to make each size in several leg-lengths and to give the rise corresponding to each leg-length as given in the table accompanying.

Example:—If 39 seat and 34 waist are to be made into 4 lengths besides the average length of 32 inches, make two lengths each side of it, as 31, 31½, 32½ and 33, as per Column 0 and Columns 1 and 2 each side of it. Then give the waist rise corresponding to the lengths as follows:

Length		Rise	
"	31	"	10
"	31½	"	10¼
"	32	"	10½
"	32½	"	10¾
"	33	"	11

The method may be applied to each size, while the quantity itself may vary to suit the condition.

Proportions are not a substitute for common sense, but they mix splendidly with it . . . . . .

CORPULENT TROUSERS DIMENSIONS.

WE referred to the average double leg-length of corpulent men as being, approximately, 8 inches less than the full height. (Loss of leg length in corpulency is shown in Plate 2.) The accompanying table gives the averages of corpulents, which, however, begin with a very small degree of corpulency. This modifies the rule in the smaller sizes, and does not give the full expression to it until the larger sizes are reached; but it even exceeds the rule in the extremely large sizes.

TABLE 44.

Line 1, the Checking Numbers of the columns each way from Column 0.

Line 2, the heights in feet and inches.

Line 3, the heights reduced to inches.

Line 4, the half-heights in inches.

Line 5, the breast sizes corresponding to the heights, as per Table 32.

Line 6, the waist sizes, as per Table 32.

Line 7 gives the seat sizes by adding the quantity in the top line to the seat size in the Checking Column, for the sizes above the Checking Column, and reduces from the same checking quantity the amount in the top line below the Checking Column.

Line 8 gives $\frac{1}{4}$ inch for each inch of difference between the breast and the waist is less than the difference in the Checking Column, as explained for averages in the preceding table.

Line 9 gives the same lengths (2 inches less than the half-height) as in the Table of Averages.

Line 10 gives the side-waist rises, which are gained in the same manner as explained for Line 11 of the previous table, or by adding 2 inches to one section, or $\frac{1}{8}$ of the total height. To this quantity add $\frac{1}{4}$ inch for each inch the waist has gained on the breast above the normal quantity.

Line 11 gives the leg-lengths for corpulent figures, which are governed by the degree of corpulency or amount of flesh taken on. Line 8 gives the relative amount of corpulency, and when the quantities it contains are deducted from the average leg-lengths in Line 9, the corpulent leg-lengths as given in this line are the results.

Line 12 gives the corpulent front-rises, which are gained by adding the relative degree of corpulency of Line 8 to the side-rise of Line 10.

Line 13 gives the corpulent basis for knee-widths from one-fourth height and one-fourth seat less 7 inches. The latter figure is the regulator, and by making the stationary quantity more or less, more or less width is gained, as may be desired.

Line 14 is the corpulent basis for the bottom widths. It is gained from one-half the knee size plus 7 inches. If this addition is increased, it will give more bottom width; if decreased, less.

TABLE 44.

Line		5	4	3	2	1	0	1	2 1/4	3 1/2	4 3/4	6	7 1/4	8 1/2	9 3/4	11	12 1/4	13 1/2
" 2	Corpulent heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9 1/2 in.	5 ft. 9 in.	5 ft. 8 1/2 in.	5 ft. 8 in.	5 ft. 7 1/2 in.	5 ft. 7 in.	5 ft. 6 1/2 in.	5 ft. 6 in.	5 ft. 5 1/2 in.
" 3	Heights reduced to inches	63	64	65	66	67	68	69	70	69 1/2	69	68 1/2	68	67 1/2	67	66 1/2	66	65 1/2
" 4	Half-heights in inches	31 1/2	32	32 1/2	33	33 1/2	34	34 1/2	35	34 3/4	34 1/2	34 1/4	34	33 3/4	33 1/2	33 1/4	33	32 3/4
" 5	Breast sizes	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
" 6	Waist sizes	33	34 1/2	36	37 1/2	39	40 1/2	42	43 1/2	45	46 1/2	48	49 1/2	51	52 1/2	54	55 1/2	57
" 7	Seat sizes	37	38	39	40	41	42	43	44 1/4	45 1/2	46 3/4	48	49 1/4	50 1/2	51 3/4	53	54 1/4	55 1/2
" 8	Indicators of corpulency	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/8	2 1/4
" 9	Normal inseam lengths	29 1/2	30	30 1/2	31	31 1/2	32	32 1/2	33	32 3/4	32 1/2	32 1/4	32	31 3/4	31 1/2	31 1/4	31	30 3/4
" 10	Side-waist rise	10 1/8	10 3/8	10 5/8	10 7/8	11 1/8	11 3/8	11 5/8	11 7/8	11 15/16	12	12 1/16	12 1/8	12 3/16	12 1/4	12 5/16	12 3/8	12 7/16
" 11	Corpulent inseam lengths	29 1/4	29 5/8	30	30 3/8	30 3/4	31 1/8	31 1/2	31 7/8	31 1/2	31 1/8	30 3/4	30 7/8	30	29 5/8	29 1/4	28 7/8	28 1/2
" 12	The front-waist rise	10 3/8	10 3/4	11 1/8	11 1/2	11 7/8	12 1/4	12 5/8	13	13 3/16	13 3/8	13 5/8	13 3/4	14 1/16	14 3/8	14 5/16	14 1/2	14 11/16
" 13	Bases for corpulent knee sizes	17 3/4	18 1/4	18 3/4	19 1/4	19 3/4	20 1/4	20 3/4	21 1/4	21 3/8	21 1/2	21 5/8	21 3/4	21 7/8	22	22 1/8	22 1/4	22 3/8
" 14	Bases for corpulent bottom widths	15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 11/16	17 3/4	17 11/16	17 7/8	17 15/16	18	18 1/16	18 1/8	18 3/8

SLENDER TROUSERS DIMENSIONS.

THE safeguard to which we invariably fall back is formed of the actual measurements of living people. These, when divided into their respective classes or types, give a tangible foundation to figure from. As briefly referred to at the beginning of the remarks on trousers, the measures of slender forms have given us an average of $66\frac{4}{10}$ inches double leg length, as against a total height of $68\frac{5}{10}$ inches, or approximately a difference of 2 inches, or an inseam length of each leg of 1 inch less than the half-height. (Increase of leg-length in slender forms is shown on Plate 3.) This is used as a basis, and the increasing waist, which is a small quantity in this class, modifies the length and waist rise on the same principle as before.

TABLE 45.

Line 1, the checking numbers each way from Column 0.

Line 2, the slender heights in feet and inches, as per Table 33.

Line 3, the heights in inches.

Line 4, the half-heights in inches.

Line 5, the breast sizes corresponding to the slender heights.

Line 6, the waist sizes for slender forms, as per Table 33.

Line 7, the seat sizes by adding the quantity in the top line to the seat sizes in the Checking Column, for all sizes above the Checking Column, and deducting it from the same seat size for all sizes below the Checking Column.

Line 8 gives $\frac{1}{4}$ inch for each inch the waist has gained above the normal, as per Column 0.

Line 9, the average inseam lengths for slender forms, which are 1 inch less than the half-height.

Line 10, the average waist rises for slender forms, which are gained in the same manner as explained for Line 11 of Table 43, except that only 1 inch, instead of 2 inches, is added to the $\frac{1}{8}$ height. The other inch has been taken up by the leg-length, which is in slender forms that amount longer than in normal.

Line 11, the inseam lengths modified by the increases in the waist. They are gained by deducting the index figures in Line 8 from the average inseam lengths in Line 9.

Line 12, the waist rises as emphasized by the increased waist. They are gained by adding the index figures in Line 8 to the waist rises in Line 10.

Line 13, the basis for knee sizes, slender forms, gained from one-fourth height and one-fourth seat, less 7 inches. The latter quantity may be more or less.

Line 14, the basis for the bottom widths is one-half of the knee width plus 7 inches, more or less.

TABLE 45.

		5	4	3	2	1	0	1	2	3	4	5	6	7	8	9
Line 1	Checking numbers each way from column 0															
" 2	Slender heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
" 3	Heights in inches	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
" 4	Half-heights in inches	31 1/2	32	32 1/2	33	33 1/2	34	34 1/2	35	35 1/2	36	36 1/2	37	37 1/2	38	38 1/2
" 5	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 6	Waist sizes	26 1/2	27 1/4	28	28 3/4	29 1/2	30 1/4	31	32 1/4	33 1/2	34 3/4	36	37 1/4	38 1/2	39 3/4	41
" 7	Seat sizes	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
" 8	Indicators of increase of waist								1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2
" 9	Average slender inseam lengths	30 1/2	31	31 1/2	32	32 1/2	33	33 1/2	34	34 1/2	35	35 1/2	36	36 1/2	37	37 1/2
" 10	Average slender waist-rise	8 7/8	9	9 1/8	9 1/4	9 3/8	9 1/2	9 5/8	9 3/4	9 7/8	10	10 1/8	10 1/4	10 3/8	10 1/2	10 5/8
" 11	Inseam lengths modified by waist increase	30 1/2	31	31 1/2	32	32 1/2	33	33 1/2	33 15/16	34 3/8	34 13/16	35 1/4	35 11/16	36 1/8	36 9/16	36 7/8
" 12	Waist-rise emphasized by waist increase	8 7/8	9	9 1/8	9 1/4	9 3/8	9 1/2	9 5/8	9 13/16	10	10 3/16	10 3/8	10 9/16	10 3/4	10 15/16	11 1/8
" 13	Bases for slender knee sizes	16 1/4	16 3/4	17 1/4	17 3/4	18 1/4	18 3/4	19 1/4	19 3/4	20 1/4	20 3/4	21 1/4	21 3/4	22 1/4	22 3/4	23 1/4
" 14	Bases for slender bottom widths	15 1/4	15 3/8	15 5/8	15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8

BREECHES DIMENSIONS.

THE foundation principles of breeches must be the same as those of trousers, as breeches cover, at least partly, the same parts as do the trousers. The length quantities are, therefore, easily gained from the lengths of trousers. The width quantities, being subject to many varying conditions, do not lend themselves so readily to the dictates of rules, as do the lengths, yet results that will be approximate enough to serve as excellent guides can be gained in the manner about to be explained.

TABLE 46.

Line 1, the heights in feet and inches.

Line 2, the average waist sizes.

Line 3, average seat sizes.

Line 4, average waist side-rise, to which more front-rise may be added, when corpulency demands it, as was explained for Line 12 of Tables 43 and 44.

Line 5, the full length inseams for average trousers.

Line 6, the lengths to the knee for breeches, which being one-half of the inseam lengths, provide for an addition of about 2 inches above the lengths as taken. This addition may be more or less, but as 1 inch is usually lost in knee fullness, only 1 inch remains to give the blousing effect.

Line 7, the lengths to the small knee, gained by adding $2\frac{1}{2}$ inches to the knee lengths.

Line 8, the lengths to the calf, $\frac{1}{6}$ of the half-inseam plus 1 inch.

Line 9, the lengths to the lower calf, which from the calf are the continuations, one-third of the half-inseam will give a satisfactory average.

The next four lines hold the width quantities. These have been given as taken and additions for seams are to be made. The reason we have varied from the rule of including all additions is that these proportions will often be used for coachmen's stockinette breeches, to which no additions are made, owing to the elasticity of the material.

Line 10, the bent-knee sizes, which are composed of $\frac{1}{6}\frac{1}{4}$ height and $\frac{1}{4}$ seat plus $\frac{1}{2}$ inch. *This does not include additions for seams.* The stationary quantity ($\frac{1}{2}$ inch) can be made more or less, to suit local conditions.

Line 11, the small knee, which is gained from $\frac{1}{16}$ height plus $\frac{3}{16}$ seat plus 2 inches. The latter quantity may be increased or decreased to suit. *Additions for seams to be made.*

Line 12, the calf: $\frac{1}{16}$ height and $\frac{1}{4}$ seat plus $\frac{1}{2}$ inch, but may be more or less. *Additions for seams to be made.*

Line 13, the lower calf: $\frac{3}{32}$ height and $\frac{1}{8}$ seat less 1 inch, but may be more or less. *Additions for seams to be made.*

The widths in this table are intended to be "on the safe side" by being ample. As muscularly developed people require greater width quantities than do those of slender build, the elements of which the widths are composed have been selected with a view to meeting the condition encountered; yet the quantities given may be modified to meet different ideas of what they should be, as has been suggested.

TABLE 46.

			5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.
	Line 1	Heights in feet and inches													
	" 2	Average waist size	28	28 3/4	29 1/2	30 1/4	31	31 3/4	32 1/2	33 1/4	34	35 1/2	37	38 1/2	40
	" 3	Average seat size	31	32	33	34	35	36	37	38	39	40	41	42	43
	" 4	Average waist side-rise	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2
Lengths	" 5	Inseam	28	28 1/2	29	29 1/2	30	30 1/2	31	31 1/2	32	32 1/2	33	33 1/2	34
Lengths	" 6	To the knee	14	14 1/4	14 1/2	14 3/4	15	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17
Lengths	" 7	To the small knee	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2
Lengths	" 8	To the calf	19 7/8	20 1/4	20 1/2	20 3/4	21	21 3/8	21 5/8	21 7/8	22 1/8	22 1/2	22 3/4	23	23 1/4
Lengths	" 9	To the lower calf	24 1/2	24 7/8	25 1/4	25 5/8	26	26 3/8	26 3/4	27 1/8	27 1/2	27 7/8	28 1/4	28 5/8	29
Widths	" 10	Bent knee	13	13 1/4	13 9/16	14	14 1/4	14 9/16	15	15 1/4	15 9/16	16	16 1/4	16 9/16	17
Widths	" 11	Small knee	11 5/8	11 3/4	12 1/16	12 3/8	12 5/8	12 3/4	13 1/16	13 3/8	13 5/8	13 3/4	14 1/16	14 3/8	14 5/8
Widths	" 12	Calf	12 1/4	12 5/8	13	13 1/4	13 1/2	13 3/4	14 1/8	14 1/2	14 3/4	15 1/8	15 1/2	15 3/4	16 1/8
Widths	" 13	Lower calf	9	9 1/4	9 3/4	9 5/8	9 7/8	10 1/8	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 5/8

READY REFERENCE TABLES.

IN the next few tables are quantities for ready reference. No claim to infallibility is made for them. As they cover the entire range of types, they overlap, as it were, and therefore only approximate correctness. In cases where direct quantities determine the final result, the quantities gained are accurate.

WAIST SIZES FOR ALL HEIGHTS AND WIDTHS.

TABLE 47.

THIS table is the essence of the waist sizes, boiled down for ready reference from the tables of all types treated. The result, under the circumstances, cannot be expected to do any more than approximate the quantity desired to be found; *but as it will do this* and not require any figuring, it will commend itself to many as a time-saver.

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height is the waist size corresponding to the breast size in the same horizontal line.

The waist sizes are modified or emphasized in a relative degree to the height and width quantities of which they partake.

Example:—The waist for a 42 breast of 5 feet 5 inches in height is found in the same line as the breast, directly under the height dealt with, and is 42½ inches in this case.

Again:—A 42 breast of 6 feet in height gives 39½ inches. The gain in height has caused a loss in width.

Approximate waist sizes for any height and width can be gained in the same way.

TABLE 47.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
59	58 1/8	57 1/4	56 3/8	55 1/2	54 5/8	53 3/4	52 7/8	52	51 1/2	51	50 1/2	50	49 1/2	49	48 1/2	48	47 1/2	47	46 1/2	46	50
57	56 1/4	55 1/2	54 3/4	54	53 1/4	52 1/2	51 3/4	51	50 1/4	49 3/4	49 1/4	48 3/4	48 1/4	47 3/4	47 1/4	46 3/4	46 1/4	45 3/4	45 1/4	44 3/4	49
55 1/2	55	54 1/2	54	53 1/4	52	51 1/4	50 1/2	49 3/4	49	48 1/2	48	47 1/2	47	46 1/2	46	45 1/2	45	44 1/2	44	43 1/2	48
53 3/4	53 1/4	52 3/4	52 1/4	51 3/4	51 1/4	50 1/2	49 3/4	49 1/4	48 1/2	47 1/4	46 3/4	46 1/4	45 3/4	45 1/4	44 3/4	44 1/4	43 3/4	43 1/4	42 3/4	42 1/2	47
52	51 1/2	51	50 1/2	50	49 1/2	48 3/4	48	47 1/2	46 3/4	46	45 1/2	45	44 1/2	44	43 1/2	43	42 1/2	42	41 3/4	41 1/2	46
50 1/4	49 3/4	49 1/4	48 3/4	48 1/4	47 3/4	47 1/4	46 3/4	46 1/4	45 3/4	45 1/4	44 1/2	43 3/4	43 1/4	42 3/4	42 1/4	41 3/4	41 1/4	41	40 3/4	40 1/2	45
48 1/2	48	47 1/2	47	46 1/2	46	45 1/2	45	44 1/2	44	43 1/2	43	42 1/2	42	41 1/2	41	40 1/2	40 1/4	40	39 3/4	39 1/2	44
46 3/4	46 1/4	45 3/4	45 1/4	44 3/4	44 1/4	43 3/4	43 1/4	42 3/4	42 1/4	41 3/4	41 1/4	40 3/4	40 1/4	40	39 3/4	39 1/2	39 1/4	39	38 3/4	38 1/2	43
45	44 1/2	44	43 1/2	43	42 1/2	42	41 1/2	41	40 3/4	40 1/2	40	39 1/2	39	38 1/2	38 1/4	38	37 3/4	37 1/2	37 1/4	37	42
43 1/4	42 3/4	42 1/4	41 3/4	41 1/4	40 3/4	40 1/4	39 3/4	39 1/4	39	38 3/4	38 1/2	37 1/2	37 1/4	37	36 3/4	36 1/2	36 1/4	36	35 3/4	35 1/2	41
41 1/2	41	40 1/2	40	39 1/2	39	38 1/2	38	37 1/2	37 1/4	36 3/4	36 1/4	36	35 3/4	35 1/2	35 1/4	35	34 3/4	34 1/2	34 1/4		40
39 3/4	39 1/4	38 3/4	38 1/4	37 3/4	37 1/4	36 3/4	36 1/4	35 3/4	35 1/4	35	34 3/4	34 1/2	34 1/4	34	33 3/4	33 1/2	33 1/4	33			39
38	37 1/2	37	36 1/2	36	35 1/2	35	34 1/2	34	33 3/4	33 1/2	33 1/4	33	32 3/4	32 1/2	32 1/4	32	31 3/4				38
36 3/4	36 1/4	35 3/4	35 1/4	34 3/4	34 1/4	33 3/4	33 1/4	33	32 3/4	32 1/2	32 1/4	32	31 3/4	31 1/2	31 1/4	31	30 3/4				37
35 1/2	35	34 1/2	34	33 1/2	33	32 1/2	32 1/4	32	31 3/4	31 1/2	31 1/4	31	30 3/4	30 1/2	30 1/4	30					36
34 1/4	33 3/4	33 1/4	32 3/4	32 1/4	31 3/4	31 1/2	31 1/4	31	30 3/4	30 1/2	30 1/4	30	29 3/4	29 1/2	29 1/4	29					35
33	32 1/2	32	31 1/2	31	30 3/4	30 1/2	30 1/4	30	29 3/4	29 1/2	29 1/4	29	28 3/4	28 1/2	28 1/4	28					34
31 3/4	31 1/4	30 3/4	30 1/4	30	29 3/4	29 1/2	29 1/4	29	28 3/4	28 1/2	28 1/4	28	27 3/4	27 1/2	27 1/4						33
30 1/2	30	29 1/2	29 1/4	29	28 3/4	28 1/2	28 1/4	28	27 3/4	27 1/2	27 1/4	27	26 3/4	26 1/2	26 1/4						32
29 1/4	28 3/4	28 1/2	28 1/4	28	27 3/4	27 1/2	27 1/4	27	26 3/4	26 1/2	26 1/4	26	25 3/4	25 1/2	25 1/4						31
28	27 3/4	27 1/2	27 1/4	27	26 3/4	26 1/2	26 1/4	26	25 3/4	25 1/2	25 1/4	25	24 3/4	24 1/2	24 1/4						30

SCYE DEPTH, FOR ALL HEIGHTS AND WIDTHS.

TABLE 48.

THIS table gives the direct quantities that make up the scye depth when the shoulder formation is normal. For cases of square or sloping shoulders, see the chapter on "*Types of Forms*" to follow.

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height in the same line as the breast size dealt with is the scye depth corresponding, with all additions included.

TABLE 48.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	11 7/16	11 1/2	11 9/16	11 5/8	11 11/16	11 3/4	11 13/16	11 7/8	11 15/16	12	50
10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	11 7/16	11 1/2	11 9/16	11 5/8	11 11/16	11 3/4	11 13/16	11 7/8	49
10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	11 7/16	11 1/2	11 9/16	11 5/8	11 11/16	11 3/4	48
10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	11 7/16	11 1/2	11 9/16	11 5/8	47
10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	11 7/16	11 1/2	46
10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	11 5/16	11 3/8	45
10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	11 3/16	11 1/4	44
9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/8	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	11 1/16	11 1/8	43
9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	10 15/16	11	42
9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	10 13/16	10 7/8	41
9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	10 11/16	10 3/4	40
9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	10 9/16	10 5/8	39
9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	10 7/16	10 1/2	38
9 1/8	9 3/16	9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	10 5/16	10 3/8	37
9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/16	9 3/4	9 7/16	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	10 3/16	10 1/4	36
8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/16	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	10 1/16	10 1/8	35
8 3/4	8 13/16	8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/16	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	9 15/16	10	34
8 5/8	8 11/16	8 3/4	8 13/16	8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	9 13/16	9 7/8	33
8 1/2	8 9/16	8 5/8	8 11/16	8 3/4	8 13/16	8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	9 11/16	9 3/4	32
8 3/8	8 7/16	8 1/2	8 9/16	8 5/8	8 11/16	8 3/4	8 13/16	8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	9 9/16	9 5/8	31
8 1/4	8 5/16	8 3/8	8 7/16	8 1/2	8 9/16	8 5/8	8 11/16	8 3/4	8 13/16	8 7/8	8 15/16	9	9 1/16	9 1/8	9 3/16	9 1/4	9 5/8	9 3/8	9 7/8	9 1/2	30

THE BLADE.

SIZES ARE NOT GIVEN IN THIS CONNECTION, AS THEY PARTAKE OF WIDTH ONLY.

THE FRONT SHOULDER MEASURE FOR ALL HEIGHTS AND WIDTHS.

TABLE 49.

THIS table is subject to the same rules as the scye quantities and the same deviations should be observed.

As the quantities run into fractions of twenty-fourths, they are apparently complicated, but as every third column makes a gain of $\frac{1}{8}$ inch, these columns, containing the fractions encountered in ordinary practice, are separated by lines in order easily to distinguish them from the rest. The column to the right of any of the separated columns shows a difference of a little more than $\frac{1}{16}$ inch, and the column to the left of any of the separated columns a little less than $\frac{1}{16}$ inch, than the quantities in the separated columns themselves. With this explanation the table can be easily handled.

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height in the same line as the breast size dealt with is the front shoulder measure corresponding, with all additions included.

TABLE 49.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
16	16 1/24	16 2/24	16 1/8	16 4/24	16 5/24	16 1/4	16 7/24	16 8/24	16 3/8	16 10/24	16 11/24	16 1/2	16 13/24	16 14/24	16 5/8	16 16/24	16 17/24	16 3/4	16 19/24	16 20/24	50
15 3/4	15 19/24	15 20/24	15 7/8	15 22/24	15 23/24	16	16 1/24	16 2/24	16 1/8	16 4/24	16 5/24	16 1/4	16 7/24	16 8/24	16 3/8	16 10/24	16 11/24	16 1/2	16 13/24	16 14/24	49
15 1/2	15 13/24	15 14/24	15 5/8	15 16/24	15 17/24	15 3/4	15 19/24	15 20/24	15 7/8	15 22/24	15 23/24	16	16 1/24	16 2/24	16 1/8	16 4/24	16 5/24	16 1/4	16 7/24	16 8/24	48
15 1/4	15 7/24	15 8/24	15 3/8	15 10/24	15 11/24	15 1/2	15 13/24	15 14/24	15 5/8	15 16/24	15 17/24	15 3/4	15 19/24	15 20/24	15 7/8	15 22/24	15 23/24	16	16 1/24	16 2/24	47
15	15 1/24	15 2/24	15 1/8	15 4/24	15 5/24	15 1/4	15 7/8	15 8/24	15 3/8	15 10/24	15 11/24	15 1/2	15 13/24	15 14/24	15 5/8	15 16/24	15 17/24	15 3/4	15 19/24	15 20/24	46
14 3/4	14 19/24	14 20/24	14 7/8	14 22/24	14 23/24	15	15 1/24	15 2/24	15 1/8	15 4/24	15 5/24	15 1/4	15 7/24	15 8/24	15 3/8	15 10/24	15 11/24	15 1/2	15 13/24	15 14/24	45
14 1/2	14 13/24	14 14/24	14 5/8	14 16/24	14 17/24	14 3/4	14 19/24	14 20/24	14 7/8	14 22/24	14 23/24	15	15 1/24	15 2/24	15 1/8	15 3/24	15 4/24	15 1/4	15 6/24	15 7/24	44
14 1/4	14 7/24	14 8/24	14 3/8	14 10/24	14 11/24	14 1/2	14 13/24	14 14/24	14 5/8	14 16/24	14 17/24	14 3/4	14 19/24	14 20/24	14 7/8	14 22/24	14 23/24	15	15 1/24	15 2/24	43
14	14 1/24	14 2/24	14 1/8	14 4/24	14 5/24	14 1/4	14 7/8	14 8/24	14 3/8	14 10/24	14 11/24	14 1/2	14 13/24	14 14/24	14 5/8	14 16/24	14 17/24	14 3/4	14 19/24	14 20/24	42
13 3/4	13 19/24	13 20/24	13 7/8	13 22/24	13 23/24	14	14 1/24	14 2/24	14 1/8	14 4/24	14 5/24	14 1/4	14 7/24	14 8/24	14 3/8	14 10/24	14 11/24	14 1/2	14 13/24	14 14/24	41
13 1/2	13 13/24	13 14/24	13 5/8	13 16/24	13 17/24	13 3/4	13 19/24	13 20/24	13 7/8	13 22/24	13 23/24	14	14 1/24	14 2/24	14 1/8	14 4/24	14 5/24	14 1/4	14 7/24	14 8/24	40
13 1/4	13 7/24	13 8/24	13 3/8	13 10/24	13 11/24	13 1/2	13 13/24	13 14/24	13 5/8	13 16/24	13 17/24	13 3/4	13 19/24	13 20/24	13 7/8	13 22/24	13 23/24	14	14 1/24	14 2/24	39
13	13 1/24	13 2/24	13 1/8	13 4/24	13 5/24	13 1/4	13 7/24	13 8/24	13 3/8	13 10/24	13 11/24	13 1/2	13 13/24	13 14/24	13 5/8	13 16/24	13 17/24	13 3/4	13 19/24	13 20/24	38
12 3/4	12 19/24	12 20/24	12 7/8	12 22/24	12 23/24	13	13 1/24	13 2/24	13 1/8	13 4/24	13 5/24	13 1/4	13 7/24	13 8/24	13 3/8	13 10/24	13 11/24	13 1/2	13 13/24	13 14/24	37
12 1/2	12 13/24	12 14/24	12 5/8	12 16/24	12 17/24	12 3/4	12 19/24	12 20/24	12 7/8	12 22/24	12 23/24	13	13 1/24	13 2/24	13 1/8	13 4/24	13 5/24	13 1/4	13 7/24	13 8/24	36
12 1/4	12 7/24	12 8/24	12 3/8	12 10/24	12 11/24	12 1/2	12 13/24	12 14/24	12 5/8	12 16/24	12 17/24	12 3/4	12 19/24	12 20/24	12 7/8	12 22/24	12 23/24	13	13 1/24	13 2/24	35
12	12 1/24	12 2/24	12 1/8	12 4/24	12 5/24	12 1/4	12 7/24	12 8/24	12 3/8	12 10/24	12 11/24	12 1/2	12 13/24	12 14/24	12 5/8	12 16/24	12 17/24	12 3/4	12 19/24	12 20/24	34
11 3/4	11 19/24	11 20/24	11 7/8	11 22/24	11 23/24	12	12 1/24	12 2/24	12 1/8	12 4/24	12 5/24	12 1/4	12 7/24	12 8/24	12 3/8	12 10/24	12 11/24	12 1/2	12 13/24	12 14/24	33
11 1/2	11 13/24	11 14/24	11 5/8	11 16/24	11 17/24	11 3/4	11 19/24	11 20/24	11 7/8	11 22/24	11 23/24	12	12 1/24	12 2/24	12 1/8	12 4/24	12 5/24	12 1/4	12 7/24	12 8/24	32
11 1/4	11 7/24	11 8/24	11 3/8	11 10/24	11 11/24	11 1/2	11 13/24	11 14/24	11 5/8	11 16/24	11 17/24	11 3/4	11 19/24	11 20/24	11 7/8	11 22/24	11 23/24	12	12 1/24	12 2/24	31
11	11 1/24	11 2/24	11 1/8	11 4/24	11 5/24	11 1/4	11 7/24	11 8/24	11 3/8	11 10/24	11 11/24	11 1/2	11 13/24	11 14/24	11 5/8	11 16/24	11 17/24	11 3/4	11 19/24	11 20/24	30

THE OVER-SHOULDER MEASURE FOR ALL HEIGHTS AND WIDTHS.

TABLE 50.

THIS table deals with direct quantities, and will within reasonable limits give accurate results.

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height in the same line as the breast size dealt with is the over-shoulder measure corresponding, with all additions included.

TABLE 50.

5 ft.	5 ft. 3 in.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
21 13/16	21 7/8	21 15/16	22	22 1/16	22 1/8	22 3/16	22 1/4	22 5/16	22 3/8	22 7/16	22 1/2	22 9/16	22 5/8	22 11/16	22 3/4	22 13/16	22 7/8	22 15/16	23	23 1/16	50
21 1/2	21 9/16	21 5/8	21 11/16	21 3/4	21 13/16	21 7/8	21 15/16	22	22 1/16	22 1/8	22 3/16	22 1/4	22 5/16	22 3/8	22 7/16	22 1/2	22 9/16	22 5/8	22 11/16	22 3/4	49
21 1/8	21 3/16	21 1/4	21 5/16	21 3/8	21 7/16	21 1/2	21 9/16	21 5/8	21 11/16	21 3/4	21 13/16	21 7/8	21 15/16	22	22 1/16	22 1/8	22 3/16	22 1/4	22 5/16	22 3/8	48
20 13/16	20 7/8	20 15/16	21	21 1/16	21 1/8	21 3/16	21 1/4	21 5/16	21 3/8	21 7/16	21 1/2	21 9/16	21 5/8	21 11/16	21 3/4	21 13/16	21 7/8	21 15/16	22	22 1/16	47
20 1/2	20 9/16	20 5/8	20 11/16	20 3/4	20 13/16	20 7/8	20 15/16	21	21 1/16	21 1/8	21 3/16	21 1/4	21 5/16	21 3/8	21 7/16	21 1/2	21 9/16	21 5/8	21 11/16	21 3/4	46
20 1/8	20 3/16	20 1/4	20 5/16	20 3/8	20 7/16	20 1/2	20 9/16	20 5/8	20 11/16	20 3/4	20 13/16	20 7/8	20 15/16	21	21 1/16	21 1/8	21 3/16	21 1/4	21 5/16	21 3/8	45
19 13/16	19 7/8	19 15/16	20	20 1/16	20 1/8	20 3/16	20 1/4	20 5/16	20 3/8	20 7/16	20 1/2	20 9/16	20 5/8	20 11/16	20 3/4	20 13/16	20 7/8	20 15/16	21	21 1/16	44
19 1/2	19 9/16	19 5/8	19 11/16	19 3/4	19 13/16	19 7/8	19 15/16	20	20 1/16	20 1/8	20 3/16	20 1/4	20 5/16	20 3/8	20 7/16	20 1/2	20 9/16	20 5/8	20 11/16	20 3/4	43
19 1/8	19 3/16	19 1/4	19 5/16	19 3/8	19 7/16	19 1/2	19 9/16	19 5/8	19 11/16	19 3/4	19 13/16	19 7/8	19 15/16	20	20 1/16	20 1/8	20 3/16	20 1/4	20 5/16	20 3/8	42
18 13/16	18 7/8	18 15/16	19	19 1/16	19 1/8	19 3/16	19 1/4	19 5/16	19 3/8	19 7/16	19 1/2	19 9/16	19 5/8	19 11/16	19 3/4	19 13/16	19 7/8	19 15/16	20	20 1/16	41
18 1/2	18 9/16	18 5/8	18 11/16	18 3/4	18 13/16	18 7/8	18 15/16	19	19 1/16	19 1/8	19 3/16	19 1/4	19 5/16	19 3/8	19 7/16	19 1/2	19 9/16	19 5/8	19 11/16	19 3/4	40
18 1/8	18 3/16	18 1/4	18 5/16	18 3/8	18 7/16	18 1/2	18 9/16	18 5/8	18 11/16	18 3/4	18 13/16	18 7/8	18 15/16	19	19 1/16	19 1/8	19 3/16	19 1/4	19 5/16	19 3/8	39
17 13/16	17 7/8	17 15/16	18	18 1/16	18 1/8	18 3/16	18 1/4	18 5/16	18 3/8	18 7/16	18 1/2	18 9/16	18 5/8	18 11/16	18 3/4	18 13/16	18 7/8	18 15/16	19	19 1/16	38
17 1/2	17 9/16	17 5/8	17 11/16	17 3/4	17 13/16	17 7/8	17 15/16	18	18 1/16	18 1/8	18 3/16	18 1/4	18 5/16	18 3/8	18 7/16	18 1/2	18 9/16	18 5/8	18 11/16	18 3/4	37
17 1/8	17 3/16	17 1/4	17 5/16	17 3/8	17 7/16	17 1/2	17 9/16	17 5/8	17 11/16	17 3/4	17 13/16	17 7/8	17 15/16	18	18 1/16	18 1/8	18 3/16	18 1/4	18 5/16	18 3/8	36
16 13/16	16 7/8	16 15/16	17	17 1/16	17 1/8	17 3/16	17 1/4	17 5/16	17 3/8	17 7/16	17 1/2	17 9/16	17 5/8	17 11/16	17 3/4	17 13/16	17 7/8	17 15/16	18	18 1/16	35
16 1/2	16 9/16	16 5/8	16 11/16	16 3/4	16 13/16	16 7/8	16 15/16	17	17 1/16	17 1/8	17 3/16	17 1/4	17 5/16	17 3/8	17 7/16	17 1/2	17 9/16	17 5/8	17 11/16	17 3/4	34
16 1/8	16 3/16	16 1/4	16 5/16	16 3/8	16 7/16	16 1/2	16 9/16	16 5/8	16 11/16	16 3/4	16 13/16	16 7/8	16 15/16	17	17 1/16	17 1/8	17 3/16	17 1/4	17 5/16	17 3/8	33
15 13/16	15 7/8	15 15/16	16	16 1/16	16 1/8	16 3/16	16 1/4	16 5/16	16 3/8	16 7/16	16 1/2	16 9/16	16 5/8	16 11/16	16 3/4	16 13/16	16 7/8	16 15/16	17	17 1/16	32
15 1/2	15 9/16	15 5/8	15 11/16	15 3/4	15 13/16	15 7/8	15 15/16	16	16 1/16	16 1/8	16 3/16	16 1/4	16 5/16	16 3/8	16 7/16	16 1/2	16 9/16	16 5/8	16 11/16	16 3/4	31
15 1/8	15 3/16	15 1/4	15 5/16	15 3/8	15 7/16	15 1/2	15 9/16	15 5/8	15 11/16	15 3/4	15 13/16	15 7/8	15 15/16	16	16 1/16	16 1/8	16 3/16	16 1/4	16 5/16	16 3/8	30

THE UPPER-SHOULDER MEASURE FOR ALL HEIGHTS AND WIDTHS.

TABLE 51.

THIS table, in order to avoid the very small fractions, varies about $\frac{1}{16}$ inch from the original table in the smaller sizes and about the same in the extremely large ones. The rule for finding quantities for different heights and widths is the same as given for the previous ready reference tables, namely :

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height in the same line as the breast size dealt with is the upper shoulder measure corresponding.

THE LOWER SHOULDER.

SIZES ARE NOT GIVEN IN THIS CONNECTION, AS THEY PARTAKE OF WIDTH ONLY AND ARE THEREFORE THE SAME AS IN TABLE 26.

TABLE 51.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	31 9/16	31 3/4	31 15/16	32 1/8	32 5/16	32 1/2	32 11/16	32 7/8	33 1/16	33 1/4	50
29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	31 9/16	31 3/4	31 15/16	32 1/8	32 5/16	32 1/2	32 11/16	32 7/8	49
28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	31 9/16	31 3/4	31 15/16	32 1/8	32 5/16	32 1/2	48
28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	31 9/16	31 3/4	31 15/16	32 1/8	47
28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	31 9/16	31 3/4	46
27 15/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	31 3/16	31 3/8	45
27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	30 13/16	31	44
26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	30 7/16	30 5/8	43
26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	30 1/16	30 1/4	42
26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	29 11/16	29 7/8	41
25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	29 5/16	29 1/2	40
25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	28 15/16	29 1/8	39
25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 4/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	28 9/16	28 3/4	38
24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	28 3/16	28 3/8	37
24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	27 13/16	28	36
23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	25 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	26 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	27 7/16	27 5/8	35
23 1/2	23 11/16	23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	27 1/16	27 1/4	34
23 1/8	23 5/16	23 1/2	23 11/16	23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	26 11/16	26 7/8	33
22 3/4	22 5/16	23 1/8	23 5/16	23 1/2	23 11/16	23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	26 5/16	26 1/2	32
22 3/8	22 9/16	22 3/4	22 1/16	23 1/8	23 5/16	23 1/2	23 11/16	23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	25 15/16	26 1/8	31
22	22 3/16	22 3/8	22 9/16	22 3/4	22 15/16	23 1/8	23 5/16	23 1/2	23 11/16	23 7/8	24 1/16	24 1/4	24 7/16	24 5/8	24 13/16	25	25 3/16	25 3/8	25 9/16	25 3/4	30

UNDERARM LENGTHS FOR ALL HEIGHTS AND WIDTHS.

TABLE 52.

THIS table is an average for all types and does not entirely correspond to any of the preceding tables on that account, but will average quite close to the general run of men. The basis is the average of measures for all forms, but may be figured by adding the normal width of back plus a seam to the normal underarm length, and adding $\frac{1}{4}$ inch to each inch of heights above the normal and reducing the same amount below it. Each size above or below the normal increases or decreases respectively $\frac{1}{8}$ inch.

The top line gives the heights.

The column to the right gives the breast sizes.

The figures directly under the height in the same line as the breast size dealt with are the sleeve lengths corresponding.

It is well understood that the underarm length of sleeves loses as the back width increases. The underarm length therefore partakes of both height and width, as the length decreases as the width increases, while the outside length of the sleeve does not change. Therefore there is not given the outside length of sleeve in these tables, as the lengths already given and explained answer all purposes.

TABLE 52.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
15	15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	50
15 1/8	15 3/8	15 5/8	15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	49
15 1/4	15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	48
15 3/8	15 5/8	15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	47
15 1/2	15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	46
15 5/8	15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	45
15 3/4	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	44
15 7/8	16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	43
16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	42
16 1/8	16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	41
16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	40
16 3/8	16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	21 3/8	39
16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2	38
16 5/8	16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	21 3/8	21 5/8	37
16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2	21 3/4	36
16 7/8	17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	21 3/8	21 5/8	21 7/8	35
17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2	21 3/4	22	34
17 1/8	17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	21 3/8	21 5/8	21 7/8	22 1/8	33
17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2	21 3/4	22	22 1/4	32
17 3/8	17 5/8	17 7/8	18 1/8	18 3/8	18 5/8	18 7/8	19 1/8	19 3/8	19 5/8	19 7/8	20 1/8	20 3/8	20 5/8	20 7/8	21 1/8	21 3/8	21 5/8	21 7/8	22 1/8	22 3/8	31
17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4	21	21 1/4	21 1/2	21 3/4	22	22 1/4	22 1/2	30

VEST LENGTHS FOR ALL HEIGHTS AND WIDTHS.

TABLE 53.

THIS table is composed of the direct quantities that govern vest-length. With the exception of making due allowance for the individual ideas of both operator and wearer, the quantities given will be found satisfactory for all sizes.

The top line gives the heights.

The column to the right gives the breast sizes.

The figure directly under the height in the same line as the breast size dealt with is the vest-length, with additions included corresponding to the height and width.

The lengths thus gained are to be applied on a perpendicular line, as for normals. The amount the width extends when the waist is applied in the larger sizes will give a curving line to the front and a dip to the bottom run (in front of the perpendicular line) which will supply the additional length needed when the waist is large.

TABLE 53.

5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.	BREAST SIZES
27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	31½	31¾	32	32¼	32½	50
27½	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	31½	31¾	32	32¼	49
27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	31½	31¾	32	48
26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	31½	31¾	47
26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	31½	46
26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	31¼	45
26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	31	44
25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	30¾	43
25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	30½	42
25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	30¼	41
25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	30	40
24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	29¾	39
24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	29½	38
24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	29¼	37
24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	29	36
23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	28¾	35
23½	23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	28½	34
23¼	23½	23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	28¼	33
23	23¼	23½	23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	28	32
22¾	23	23¼	23½	23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	27¾	31
22½	22¾	23	23¼	23½	23¾	24	24¼	24½	24¾	25	25¼	25½	25¾	26	26¼	26½	26¾	27	27¼	27½	30

INSEAM LENGTHS AND WAIST-RISES FOR ALL HEIGHTS AND WIDTHS.

THIS table offers a knotty problem for solution. The waist sizes as they are large or small add to or deduct from a relative amount to the rise and inseam quantities, and as waist sizes differ, we have a plural quantity adjusted to a singular one; besides this the length and the rise are largely governed by height. We must therefore provide for such conditions. These conditions we have tried to meet by giving several waist sizes to each seat size, and a relative addition representing the gain above the normal waist rise corresponding to each degree of gain; this is to be added to the height quantity itself, which varies in direct proportion to the height.

TABLE 54.

THE first column to the right contains the seat sizes from 33 to 54.

The next 6 columns contain the waist sizes, as marked at the head of these columns.

The 6 columns to the left of the waist sizes contain the additions corresponding to the columns of the same number in the waist sizes.

The open space to the left of the additions has the heights from 5 feet to 6 feet 8 inches at the top, and the waist rise and the inseam lengths corresponding to the heights at the bottom, respectively.

Example :—*To find the inseam and waist rise corresponding, for a man* 5 *feet* 10 *inches tall,* 48 *inches seat and* 45 *inches waist,* proceed as follows :

First find the number of the column in which the waist size is located in the line that contains the seat size, which is Column 1 in this case. Find the addition in Column 1 under the heading "The Key," and in the same horizontal line as the waist and seat are located. The addition in this case is $\frac{1}{2}$ inch.

Then find the waist rise and the inseam corresponding to the height, which in this case are 11 and 33, respectively.

Now add the $\frac{1}{2}$ inch to the waist rise, and deduct the same amount from the inseam, which gives $11\frac{1}{2}$ side rise and $32\frac{1}{2}$ inseam for a man 48 inches seat, 45 inches waist and 5 feet 10 inches in height.

Again let us suppose that the same man measures 50 inches around the waist, the other measures the same as before. This waist measure is in Column 6 and the addition in Column 6 is $1\frac{3}{4}$ inches. This amount added to the rise would then make it $12\frac{3}{4}$ inches, and the same amount deducted from the inseam would leave it $31\frac{1}{4}$ inches for a man 5 feet 10 inches tall of 48 seat and 50 waist.

If the waist is larger than the sizes given in Column 6, make the addition $\frac{1}{4}$ inch more for each size above the size given in Column 6, and if smaller than sizes in Column 1, reduce $\frac{1}{4}$ inch for each size, until the figure 0 is reached. To the left of the figure 0, reverse the process and deduct from the waist rise and add to the inseam the quantity in the column corresponding to the waist size.

TABLE 54.

Heights																						
5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.	6 ft. 6 in.	6 ft. 7 in.	6 ft. 8 in.		
8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4	10 1/2	10 3/4	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	Waist Rise	
28	28 1/2	29	29 1/2	30	30 1/2	31	31 1/2	32	32 1/2	33	33 1/2	34	34 1/2	35	35 1/2	36	36 1/2	37	37 1/2	38	Inseam Lengths	

The Key						Waist Sizes						Seat Sizes
1	2	3	4	5	6	1	2	3	4	5	6	
1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	51	52	53	54	55	56	54
1 1/8	1 3/8	1 5/8	1 7/8	2 1/8	2 3/8	50	51	52	53	54	55	53
1	1 1/4	1 1/2	1 3/4	2	2 1/4	49	50	51	52	53	54	52
7/8	1 1/8	1 3/8	1 5/8	1 7/8	2 1/8	48	49	50	51	52	53	51
3/4	1	1 1/4	1 1/2	1 3/4	2	47	48	49	50	51	52	50
5/8	7/8	1 1/8	1 3/8	1 5/8	1 7/8	46	47	48	49	50	51	49
1/2	3/4	1	1 1/4	1 1/2	1 3/4	45	46	47	48	49	50	48
3/8	5/8	7/8	1 1/8	1 3/8	1 5/8	44	45	46	47	48	49	47
1/4	1/2	3/4	1	1 1/4	1 1/2	43	44	45	46	47	48	46
1/8	3/8	5/8	7/8	1 1/8	1 3/8	42	43	44	45	46	47	45
0	1/4	1/2	3/4	1	1 1/4	40	41	42	43	44	45	44
0	1/8	3/8	5/8	7/8	1 1/8	39	40	41	42	43	44	43
1/8	0	1/4	1/2	3/4	1	38	39	40	41	42	43	42
1/4	0	1/8	3/8	5/8	7/8	37	38	39	40	41	42	41
3/8	1/8	0	1/4	1/2	3/4	35	36	37	38	39	40	40
1/2	1/4	0	1/8	3/8	5/8	34	35	36	37	38	39	39
5/8	3/8	1/8	0	1/4	1/2	33	34	35	36	37	38	38
3/4	1/2	1/4	0	1/8	3/8	31	32	33	34	35	36	37
7/8	5/8	3/8	1/8	0	1/4	30	31	32	33	34	35	36
1	3/4	1/2	1/4	0	1/8	29	30	31	32	33	34	35
1 1/8	7/8	5/8	3/8	1/8	0	28	29	30	31	32	33	34
1 1/4	1	3/4	1/2	1/4	0	27	28	29	30	31	32	33

A BASIS FOR LENGTHS OF COATS.

WHILE lengths of coats are largely a matter of height quantities, yet the lengths should be modified by width.

The corpulent height is not great enough to correspond to the width, and therefore a slight increase in the length quantities should be made for this class to offset the disproportion, as far as effect is concerned.

The same line of reasoning would also involve a slight decrease in the slender form, as the subject's height is too great for his width, and the fashionable waist length for frock coats and the full lengths for both frocks and sacks should suggest a less length than that proportionate to his height.

The quantities in the next table are composed of both height and width quantities and a stationary quantity besides, to carry out the ideas suggested. While no permanent quantity can be given as long as fashions change, yet something to figure from is essential and to the something herewith given direct quantities can be added or deducted..

If, at the beginning of a season, you decide upon a certain length for your model size, and that length is 2 inches longer than the quantities in this table, then by adding 2 inches to all the sizes you preserve an even and yet proportionate length for the complete range from the smallest to the largest sizes. If you decide upon a shorter length, reduce in the same way.

The rules to follow can, of course, be applied to individual cases, subject to the same modifications as hereafter given and previously explained.

LENGTHS FOR AVERAGE SIZES.

TABLE 55.

Line 1, heights in feet and inches.

Line 2, breast sizes.

Line 3, natural waist lengths, which are $\frac{1}{4}$ height plus a seam, or $\frac{1}{4}$ inch.

Line 4, the fashionable waist lengths for frock coats, gained by adding $1\frac{1}{2}$ inch to the natural waist length. The fashionable waist may be more or less, according to taste or style.

Line 5, the lengths to the seat prominence—gained from three sections of height.

Line 6, the full lengths of average sacks—gained from $\frac{1}{4}$ of the full breast plus $\frac{1}{4}$ of full height plus 3 inches more or less.

Line 7, the lengths for cutaways—gained from $\frac{1}{4}$ of the full height plus $\frac{1}{4}$ of the full breast plus 10 inches more or less.

Line 8, the lengths of double-breasted frocks—gained from $\frac{1}{4}$ full height plus $\frac{1}{4}$ full breast plus $13\frac{1}{2}$ inches more or less.

Line 9, the lengths of average overcoats—gained from $\frac{1}{2}$ of full height plus $\frac{1}{4}$ of full breast.

TABLE 55.

Line	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10½ in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.
2	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
3	Natural waist-lengths	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18⅛	18	17⅞	17¾	17⅝	17½	17⅜	17¼
4	Fashionable waist-lengths	16¾	17	17¼	17½	17¾	18	18¼	18½	18¾	19	19¼	19½	19¾	19⅝	19½	19⅜	19¼	19⅛	19	18⅞	18¾
5	Length to seat prominence	22½	22⅞	23¼	23⅝	24	24⅜	24¾	25⅛	25½	25⅞	26¼	26⅝	27	26 13/16	26⅝	26 7/16	26¼	26 1/16	25⅞	25 11/16	25½
6	Full lengths of sacks	25½	26	26½	27	27½	28	28½	29	29½	30	30½	31	31½	31⅝	31¾	31⅞	32	32⅛	32¼	32⅜	32½
7	Full length of cutaways	32½	33	33½	34	34½	35	35½	36	36½	37	37½	38	38½	38⅝	38¾	38⅞	39	39⅛	39¼	39⅜	39½
8	Full length of double breasted frocks	36	36½	37	37½	38	38½	39	39½	40	40½	41	41½	42	42⅛	42¼	42⅜	42½	42⅝	42¾	42⅞	43
9	Full length of overcoats	37½	38¼	39	39¾	40½	41¼	42	42¾	43½	44¼	45	45¾	46½	46½	46½	46½	46½	46½	46½	46½	46½

LENGTHS FOR CORPULENT SIZES.

TABLE 56.

THE same general plan obtains as in the preceding table, the differences of the height and width quantities giving the variations.

Line 1, the heights in feet and inches.

Line 2, the breast sizes.

Line 3, the natural waist lengths, gained by $\frac{1}{4}$ height plus a seam, or $\frac{1}{4}$ inch.

Line 4, the fashionable waist lengths for corpulent frocks, gained by adding $1\frac{3}{4}$ inch to the natural waist length, which is $\frac{1}{4}$ inch more than in the averages in Table 54.

Line 5, the lengths to the seat prominence, which are three sections of the height.

Line 6, the full lengths of corpulent sacks, gained from $\frac{1}{4}$ of the full height plus $\frac{1}{4}$ of the full breast plus 3 inches, but may be more or less.

Line 7, the lengths of cutaway frocks, gained from $\frac{1}{4}$ of the full height plus $\frac{1}{4}$ of the full breast plus 10 inches. The last may be more or less.

Line 8, the lengths of double breasted frocks, gained from $\frac{1}{4}$ full height and $\frac{1}{4}$ full breast plus $13\frac{1}{2}$ inches. The last may be more or less.

Line 9, the lengths of corpulent overcoats, gained from $\frac{1}{2}$ of full height plus $\frac{1}{4}$ of full breast, to which additions or deductions may be made.

TABLE 56.

Line																		
1	Heights in feet and inches	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.	5 ft. 5½ in.
2	Breast sizes	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
3	Natural waist lengths	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	17 5/8	17 1/2	17 3/8	17 1/4	17 1/8	17	16 7/8	16 3/4	16 5/8
4	Fashionable waist lengths	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/8	19 1/4	19 1/8	19	18 7/8	18 3/4	18 5/8	18 1/2	18 3/8
5	Lengths to seat prominence	23 5/8	24	24 3/8	24 3/4	25 1/8	25 1/2	25 7/8	26 1/4	25 15/16	25 7/8	25 11/16	25 1/2	25 9/16	25 1/8	24 15/16	24 3/4	24 11/16
6	Full lengths of sacks	27 3/4	28 1/4	28 3/4	29 1/4	29 3/4	30 1/4	30 3/4	31 1/4	31 3/8	31 1/2	31 5/8	31 3/4	31 7/8	32	32 1/8	32 1/4	32 3/8
7	Full lengths of cutaways	34 3/4	35 1/4	35 3/4	36 1/4	36 3/4	37 1/4	37 3/4	38 1/4	38 3/8	38 1/2	38 5/8	38 3/4	38 7/8	39	39 1/8	39 1/4	39 3/8
8	Full lengths of double breasted frocks	38 1/4	38 3/4	39 1/4	39 3/4	40 1/4	40 3/4	41 1/4	41 3/4	41 7/8	42	42 1/8	42 1/4	42 3/8	42 1/2	42 5/8	42 3/4	42 7/8
9	Full lengths of overcoats	40 1/2	41 1/4	42	42 3/4	43 1/2	44 1/4	45	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4	45 3/4

LENGTHS FOR SLENDER SIZES.

TABLE 57.

THE same general plan is employed as in the two preceding tables; the height and width quantities lend the flexibility to give lengths corresponding to the type dealt with.

Line 1, the heights in feet and inches.

Line 2, the breast sizes.

Line 3, the natural waist lengths, which are $\frac{1}{4}$ height plus a seam, or $\frac{1}{4}$ inch.

Line 4, the fashionable waist lengths for slender forms, gained by adding $1\frac{1}{4}$ inch to the natural waist length, which is $\frac{1}{4}$ inch less than in the averages as per Table 54.

Line 5, the lengths to the seat prominence, which are three sections to the height.

Line 6, the full lengths of slender sacks, gained from $\frac{1}{4}$ of the full height and $\frac{1}{4}$ of the full breast plus 3 inches.

Line 7, the full lengths of the cutaway frocks, gained from $\frac{1}{4}$ full height and $\frac{1}{4}$ full breast plus 10 inches. The stationary addition may be made more or less.

Line 8, the lengths of double-breasted frocks, gained from $\frac{1}{4}$ full height and $\frac{1}{4}$ full breast plus $13\frac{1}{2}$ inches.

Line 9, the lengths of overcoats for slender forms, gained from $\frac{1}{2}$ of full height and $\frac{1}{4}$ of full breast. Additions or deductions may be made.

TABLE 57.

		5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	6 ft. 1 in.	6 ft. 2 in.	6 ft. 3 in.	6 ft. 4 in.	6 ft. 5 in.
Line 1	Heights in feet and inches															
" 2	Breast sizes	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
" 3	Natural waist lengths	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2
" 4	Fashionable waist lengths	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	19	19 1/4	19 1/2	19 3/4	20	20 1/4	20 1/2	20 3/4
" 5	Lengths to seat prominence	23 5/8	24	24 3/8	24 3/4	25 1/8	25 1/2	25 7/8	26 1/4	26 5/8	27	27 3/8	27 3/4	28 1/8	28 1/2	28 7/8
" 6	Full lengths of sacks	26 1/4	26 3/4	27 1/4	27 3/4	28 1/4	28 3/4	29 1/4	29 3/4	30 1/4	30 3/4	31 1/4	31 3/4	32 1/4	32 3/4	33 1/4
" 7	Full lengths of cutaways	33 1/4	33 3/4	34 1/4	34 3/4	35 1/4	35 3/4	36 1/4	36 3/4	37 1/4	37 3/4	38 1/4	38 3/4	39 1/4	39 3/4	40 1/4
" 8	Full lengths of double breasted frocks	36 3/4	37 1/4	37 3/4	38 1/4	38 3/4	39 1/4	39 3/4	40 1/4	40 3/4	41 1/4	41 3/4	42 1/4	42 3/4	43 1/4	43 3/4
" 9	Full lengths of overcoats	39	39 3/4	40 1/2	41 1/4	42	42 3/4	43 1/2	44 1/4	45	45 3/4	46 1/2	47 1/4	48	48 3/4	49 1/2

WORKING TABLE FOR AVERAGES WITHOUT ADDITIONS TO THE SHORT MEASURE.

TABLE 58.

THIS table is identical with Table 31, excepting that the short measures in Lines 10, 11, 12 and 13 are given as taken, *without the additions* for seams and ease. This is done to facilitate comparisons with measures as taken, and merely to give the operator the choice to use the table that he may find the most convenient.

Lines 1, 2, 3, 4, 5, 6, 7, 8 and 9 are the same as explained for Table 31.

Line 10, the scye depths *without additions*, as given in Line 7 of Table 11.

Line 11, the blades *without additions*, as given in Line 3 of Table 12.

Line 12, the front-shoulder measures *without additions*, as given in Line 6 of Table 13.

Line 13, the over-shoulder measures *without additions*, as given in Line 6 of Table 14.

Lines 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and 26 are the same as given in and explained for Table 31.

CARLSTROM'S PROPORTIONS.

TABLE 58

Line	See Table	Numbers of columns each way from Checking Column...	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12
" 2	" " 3	Heights in feet and inches....	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 11 in.	6 ft.	5 ft. 11½ in.	5 ft. 11 in.	5 ft. 10⅝ in.	5 ft. 10 in.	5 ft. 9⅛ in.	5 ft. 9 in.	5 ft. 8⅛ in.	5 ft. 8 in.
" 3	" " 3	Heights in inches..... ...	60	61	62	63	64	65	66	67	68	69	70	71	72	71½	71	70½	70	69½	69	68½	68
" 4	" " 3	Half-heights in inches.....	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½	36	35¾	35½	35¼	35	34¾	34½	34¼	34
" 5	" " 6	Half-heights to gain widths by	"	"	"	"	"	"	"	"	"	"	"	"	"	36½	37	37½	38	38½	39	39½	40
" 6	" " 11	Fourth-heights in inches.....	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18⅞	17¾	17⅝	17½	17⅜	17¼	17⅛	17
" 7	" " 6	Last figure and fractions of Line 5.....	0	0½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9	9½	10
" 8	" " 6	Breast sizes. (Gained from Lines 5 and 7).....	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 9	" " 6	Waist sizes.....	28	28¾	29½	30¼	31	31¾	32½	33¼	34	35½	37	38½	40	41½	43	44½	46	47½	49	50½	52
" 10	" " 11	Scye depth. Without additions	7½	7⅝	7⅞	8	8¼	8½	8⅝	8¾	9	9⅛	9⅜	9½	9¾	9⅞	9 15/16	10 1/16	10⅛	10¼	10 5/16	10 7/16	10½
" 11	" " 12	Blade. Without additions....	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½	12¾	13	13¼	13½	13¾	14	14¼	14½
" 12	" " 13	Front-shoulder. Without additions.....	10	10¼	10⅝	10⅞	11⅛	11½	11¾	12	12¼	12⅝	12⅞	13⅛	13½	13¾	13⅞	14⅛	14⅜	14⅝	14⅞	15	15¼
" 13	" " 14	Over-shoulder. Without additions.....	14½	15	15⅜	15¾	16⅛	16½	16⅞	17¼	17⅝	18	18⅜	18¾	19⅛	19½	19⅞	20¼	20½	20¾	21	21¼	21½
" 14	" " 25	Upper shoulder.....	21⅞	22⅜	23	23½	24⅛	24¾	25¼	25⅞	26⅜	26⅞	27½	28	28⅝	28⅞	29⅛	29½	29⅞	30⅛	30½	30¾	31⅛
" 15	" " 26	Lower shoulder.....	21	21⅝	22⅛	22¾	23⅜	24	24½	25⅛	25⅝	26¼	26⅞	27⅜	28	28⅝	29⅛	29¾	30⅝	30⅞	31½	32⅛	32⅝
" 16	" " 29	Widths of backs.....	6¾	6⅞	7	7⅛	7¼	7⅜	7½	7⅝	7¾	7⅞	8	8⅛	8¼	8⅜	8½	8⅝	8¾	8⅞	9	9⅛	9¼
" 17	" " 29	Widths of scyes.....	4¼	4⅜	4½	4⅝	4¾	4⅞	5	5⅛	5¼	5⅜	5½	5⅝	5¾	5⅞	6	6⅛	6¼	6⅜	6½	6⅝	6¾
" 18	" " 29	Widths of fronts to center of coats.....	6¼	6½	6¾	7	7¼	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼
" 19	" " 29	Full width of front of a single breasted coat.....	7½	7¾	8	8¼	8½	8¾	9	9¼	9½	9¾	10	10¼	10½	10¾	11	11¼	11½	11¾	12	12¼	12½
" 20	" " 30	One section (⅛ height) of the human body.....	7½	7⅝	7¾	7⅞	8	8⅛	8¼	8⅜	8½	8⅝	8¾	8⅞	9	8 15/16	8⅞	8 13/16	8¾	8 11/16	8⅝	8 9/16	8½
" 21	" " 30	One unit ($\frac{1}{64}$) of the human body.....	60/64	61/64	62/64	63/64	1	1 1/64	1 2/64	1 3/64	1 4/64	1 5/64	1 6/64	1 7/64	1 8/64	1 7½/64	1 7/64	1 6½/64	1 6/64	1 5½/64	1 5/64	1 4½/64	1 4/64
" 22	" " 30	Natural waist length.....	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18	18¼	18⅛	18	17⅞	17¾	17⅝	17½	17⅜	17¼
" 23	" " 30	Length to the seat.....	22½	22⅞	23¼	23⅝	24	24⅜	24¾	25⅛	25½	25⅞	26¼	26⅝	27	26 13/16	26⅝	26 7/16	26¼	26 1/16	25⅞	25 1/16	25½
" 24	" " 30	Length to the small knee	37½	38⅛	38¾	39⅜	40	40⅝	41¼	41⅞	42½	43⅛	43¾	44⅜	45	45 3/16	44⅜	44 9/16	43¾	43 7/16	43⅛	43 11/16	42½
" 25	" " 30	Length to the lower calf.....	45	45¾	46½	47¼	48	48¾	49½	50¼	51	51¾	52½	53¼	54	53⅝	53¼	52⅞	52½	52⅛	51¾	51⅜	51
" 26	" " 10	Weights corresponding to heights and widths.....	107	112¼	117½	122¼	128	133½	138½	143¾	149	158½	168	177	186	193¾	200½	207¼	214	220¼	226½	231¼	238

TYPES OF FORMS.

The Importance of the Knowledge of Types in Connection with Proportions.

THE cutter who has occasion to cut by proportions will find himself handicapped, even when he has mastered the science, unless he possesses a clear knowledge of the types of forms. While height and width give the basis for general development, they do not provide for what Huxley terms "spontaneous variations," or variations that occur without any apparent cause.

Tailors encounter this element, principally, in shoulder formation and attitude, but beyond this there are numerous minor variations, such as long and short bodied forms, flat and round forms, forms of long and short extremities, forms varying in corresponding parts of the two sides, and so on through a long list, many of which have been treated in the classifications of the forms already dealt with.

As far as we have gone there has been nothing to indicate attitude or shoulder formation; but attitude and the slope and squareness of the shoulders are important and necessary elements when individuals are dealt with.

Proportions, as treated up to this time, have given us the knowledge of treatment in masses, as the artist would say, by which we could safely prepare a set of patterns intended to average well for a great number of people; but when employed for individual patterns the treatment in masses should be supplemented by other details, *and attitude and shoulder formation are details that come under this head.* Further details can be added, but there is always danger of loading any proposition down to an unwieldy point. We shall therefore confine ourselves to the details referred to.

To illustrate the need of these details, let us suppose a case of two coats of the same kind to be cut by proportions for two different men whom we have never seen, but who are of exactly the same height and the same width. As the basis to figure from is the same, the deductions reached from them would naturally be the same also; and though the garments constructed from such a method of deduction would be of perfect proportions, we might learn to our sorrow that neither one of the garments corresponded to the figure dealt with; for while the figures were identical in height and width, one might be extremely low shouldered and the other extremely high shouldered, which would cause our otherwise scientifically calculated garments to fall short of perfection in one case and beyond it, if the figure of speech is allowable, in the other. This argues in favor of a third element entering in, besides the height and width, when cutting garments for people we cannot measure ourselves. This element is shoulder formation.

The importance of this element, *shoulder formation*, is shown by Plates 4 and 5.

PLATE 4.

THE SLOPING OR LOW SHOULDER.

The dotted line shows the normal height of the shoulder, as illustrated by the Figures of Plate 1, page 63.

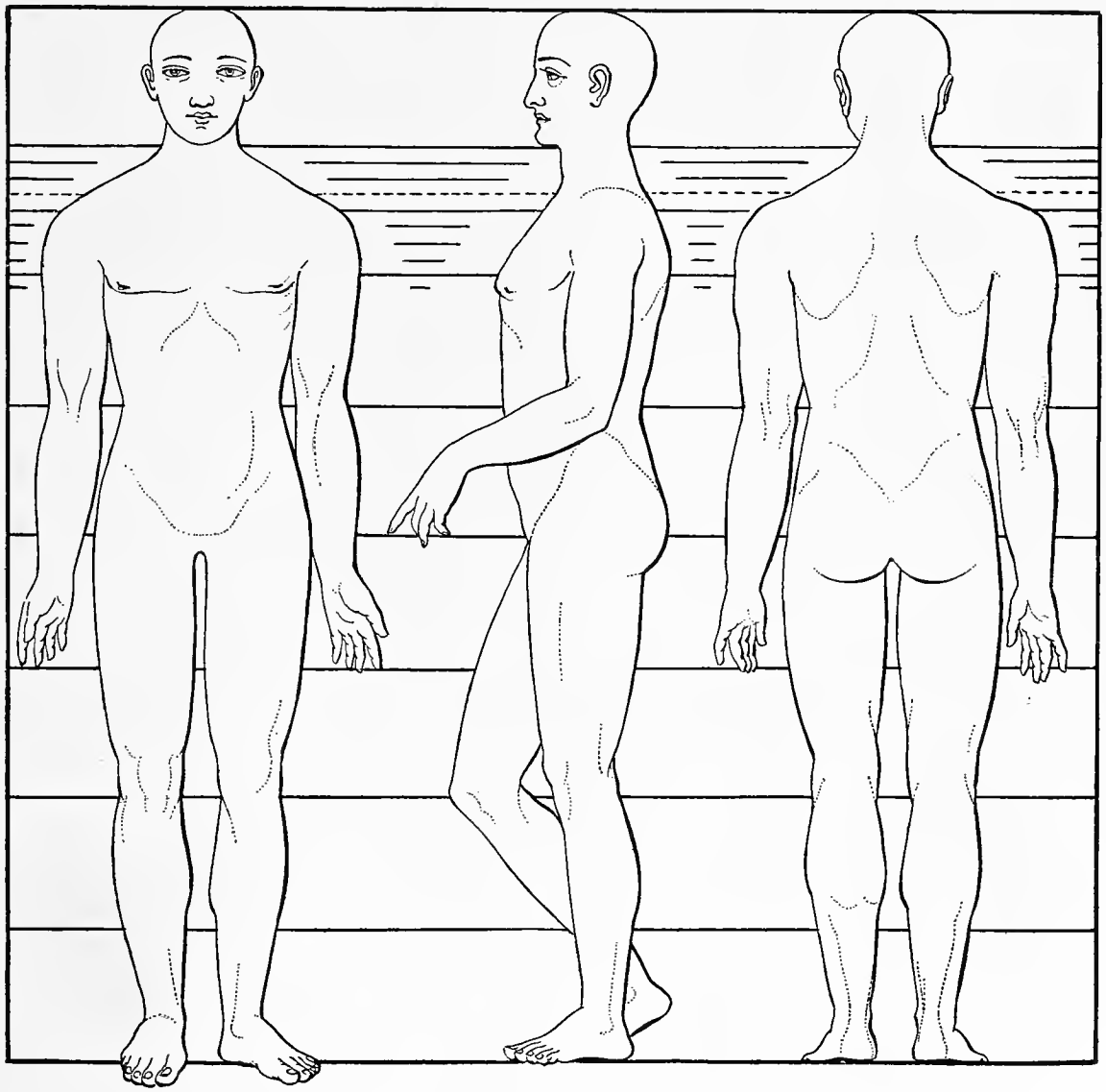


PLATE 4.

For the figures of this plate the shoulder height (see the line next below the dotted line) is less than normal by one-eighth of a section, or one sixty-fourth of the full height, 1 inch for a height of 5 feet 6 inches, or 66 inches.

PLATE 5.

THE HIGH OR SQUARE SHOULDER.

The dotted line shows the normal height of the shoulder as illustrated by the figures of Plate 1, page 63.

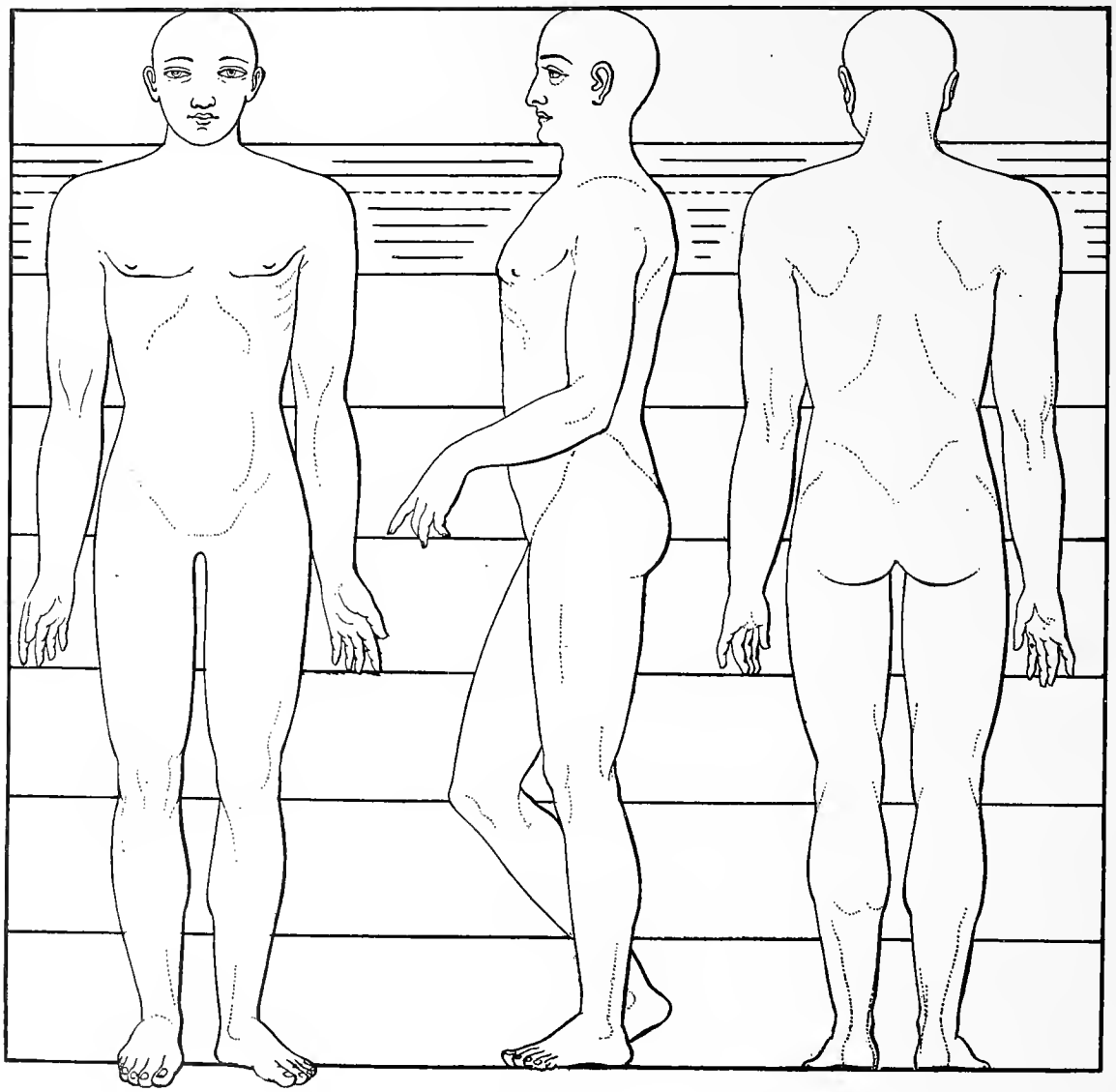


PLATE 5.

For the figures of this plate the shoulder height (see the line next above the dotted line) is more than normal by one-eighth of a section, or one sixty-fourth of the full height, 1 inch for a height of 5 feet 6 inches, or 66 inches.

But, again, let us imagine the same cases with normal shoulder formations, which according to our present stage of calculating ought to make a garment cut for one correct for the other; but it might not do so *because of the attitude of the men.* One might be overerect and the other stooping, and still both might be of the same height, draw the same breast measure and be of normal shoulder formation. This suggests the need of a fourth element to be employed when cutting individual garments by proportions, namely, attitude.

PLATE 6.

ATTITUDE.

The figure in the center represents the normal attitude, that at at the left the overerect and that at the right the stooping.

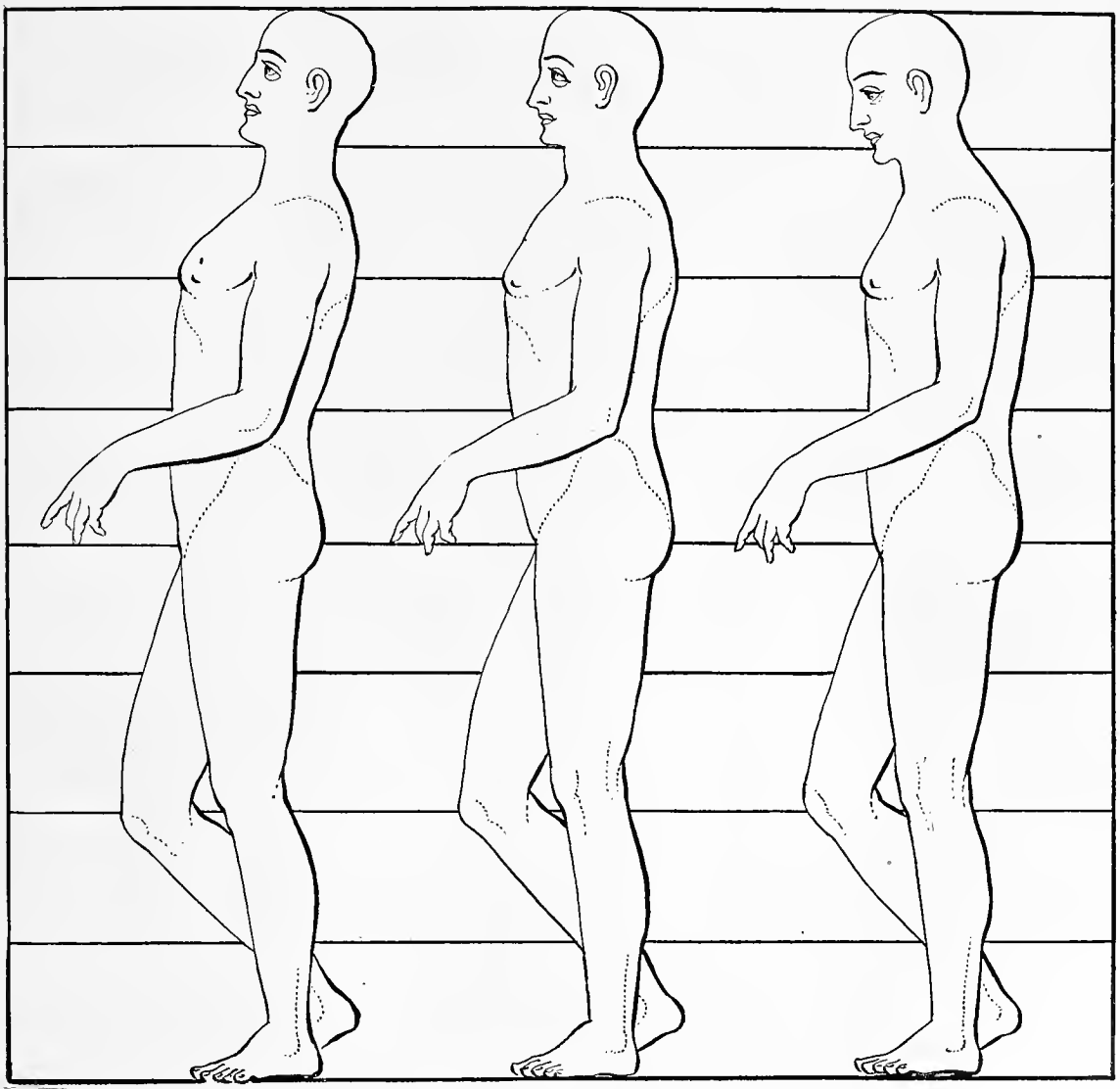


PLATE 6.

We have therefore to consider height, width, shoulder formation *and* attitude. This brings us to an interesting point, the definition of types, and the questions may well be asked: "How can we define the degree of slope or squareness dealt with? and how can attitude be ascertained?"

We are in a general way cognizant of the fact that the shoulder formation of some people is best typified by the slope of a champagne bottle, while others may be likened to the square effect found in the average ink bottle.

To determine the shoulder slope, place a straight edge even with the top of the sleeve head, or at the height of the shoulder, and make a mark in the center of the back, even with the shoulder height.

Measure the distance from the mark just made to the height of the coat, or to the collar seam. This gives the slope, and 3 inches may be considered an average. Anything more than 3 inches would be the amount of extra slope and anything less than 3 inches would be the amount of squareness of the shoulder. These quantities gained as described can be applied to any system of cutting. This treatise is not intended to advocate methods nor indicate a preference for any system. To bring out features applicable to all systems worthy of the name is the limit of the purpose of this volume.

To ascertain attitude, apply the length from the nape of the neck (or from the collar button for convenience) to the floor, and then from the collar button in front to the floor. The back measure should approximate $2\frac{1}{2}$ inches more than the front measure. An increase over the average length in the back quantity would indicate a stooping form and a decrease would mean erectness. A tape held at the end of a strait edge, with the straight edge resting on the floor, proves a fairly satisfactory attitude taker, but much care is required in its taking. If, however, a cutter knows his business tolerably well, and has good eyes and good sense, the most satisfactory way to determine attitude is to do so by judgment.

In cases where other variations are emphasized it is well to have a clear description of them accompanying the regular elements, such as long waist, short legs, bow legs, knock knees, back bending calves, one shoulder low, angular figure, round figure, flat figure, flat blades, prominent blades, large hips, flat seat, head dipping forwards, etc., etc With these points understood we can proceed to the application of the principles laid down.

APPLICATION IN PRACTICE.

IF a student of this book were suddenly called on to cut a suit of clothes by proportions, the suddenness of it might cause him some anxiety and he might find it necessary to plow through many of the preceding pages in order to connect the propositions that have been set forth before the venture could be safely made.

To refresh the memory, as well as to summarize what we have said, the following applications to actual practice are calculated to best demonstrate the mode of procedure.

The three cases herewith given are selected so that the first will come within the limits of the average, the second within the definition of corpulency and the third within the range of the slender form.

Let us suppose a case of a traveling salesman sending home three orders to the measurements and descriptions given below.

1	Height, 5 feet 6. Slope, $2\frac{3}{4}$.	Breast, 35. Attitude $\frac{1}{4}$ erect.
2	Height, 5 feet 6. Slope, $2\frac{3}{8}$.	Breast, 47. Attitude erect.
3	Height, 5 feet 11. Slope, $3\frac{5}{8}$.	Breast, 37. Attitude $\frac{1}{2}$ stooping.

Order No. 1.

The measures indicate a type of form that would come under the head of the average, as far as height and widths are concerned. The difference between the height given and the height corresponding to the breast size is 1 inch, the latter height being the greater; therefore as the inch and the one-half of itself make $1\frac{1}{2}$ inch, the half of which amount (as explained in Table 6), $\frac{3}{4}$ inch, is deducted from the average waist ($31\frac{3}{4}$) corresponding to the breast size dealt with, the waist size required is now 31 inches, the loss of size being compensated for by increased height.

When the height is less than that corresponding to the width, take the number in the top line (Table 31) corresponding to the height, say 5 feet 1 inch, which is 7, less the number in the top line of the column in which the breast measure is found, say 35 breast, or 3, leaving 4 as a remainder. Add one-half, or 2 inches, of the remainder to the average waist size for the breast dealt with, making the waist $33\frac{3}{4}$ when the breast is 35 and the height only 5 feet 1, the increased waist being the compensating quantity for the decreased height. The quantity gained tallies also with the ready reference Table 47.

The breast size is 35 and the waist has been found as 31 for a man of 5 feet 6 inches in height.

The sectional measures as given for convenience in the ready reference tables (except the blades) are 12½ front shoulder, 17 3/16 over shoulder and 9¼ depth of scye with all additions included; but as the shoulder slope is ¼ inch less than the normal, the depth of scye and the front-shoulder measure are each reduced the amount the slope has fallen short; if the reverse were the case the measures should be increased that amount.

The blade is normally 12¼, but the half of the degree of erectness, or ⅛ inch, may be reduced, making it 12⅛. In stooping, one-half of the degree of stoop is added.

The lower shoulder would be 24 and the upper 25; but the slope given indicates ¼ inch squareness, as it is 2¾ instead of 3 inches, which makes it necessary to make the upper shoulder ½ inch less than the lower, or 23½ inches, as one-half of the amount the upper shoulder is less than the lower indicates the degree of squareness; in a reverse case the one-half of the amount the upper shoulder is greater than the lower indicates extra slope. The smaller sizes average slightly sloping, and the large ones slightly square, as may be noted in Table 31.

The natural waist is gained by the ¼ height plus ¼ inch, or 16¾ inches, as previously explained.

The fashionable waist is 1½ inch more, or 18¼ inches. The full length for a sack, as per explanations for Table 55, would be 28¼ inches. The basis for the full length of sacks may be gained by adding 3 inches, or any given number, to the vest lengths in Table 53.

The full length for a cutaway (which may be gained by adding 10 inches to the vest lengths in Table 53) would be 35¼ inches.

The overcoat (½ height and ¼ breast) would be 41¾ inches long.

The sleeves, as explained, 31¾ inches long with additions included, or inseam length 18⅜ inches.

The vest length, as per Table 53, is 25¼ inches with additions included.

The trousers, 36 seat, 31 waist, as per Table 54, would give 31⅝ inseam and 9⅜ rise, which would make the outseam 41. The waist has already been determined for the coat, but may be made ½ inch less, as taken under the vest, particularly if a close fit is wanted. The seat is 1 inch more than the breast, or 36.

The knee (¼ height and ¼ seat *less* 7 inches) is 18½ inches.

The bottom (½ knee *plus* 7 inches) is 16¼.

The total measurements gained to cut any kind of a garment by, for a man 5 *feet* 6 *inches tall, of* 35 *breast,* ¼ *square and* ½ *erect, is therefore the following:*

FOR THE COAT.

All Additions Included.

9 depth of scye.
16¾ natural waist.
18¼ fashionable waist.
28¼ length of sack.
35¼ length of cutaway.
41¾ length of overcoat.
35 breast.
31 waist.
12⅛ blade.
12½ front shoulder.
17 3/16 over shoulder.
23½ upper shoulder.
24 lower shoulder.
31¾ sleeve length.

11¾ opening.

FOR THE VEST.

25¼ full length.

FOR THE TROUSERS.

9⅜ rise.
31⅝ inseam.
41 outseam.
31 waist.
36 seat.
18½ knee.
16¼ bottom.

Order No. 2.

Height 5 feet 6 inches. Breast 47.
Slope $2\frac{3}{8}$. Attitude normal.

This comes under the heading of the corpulent type. The waist for these dimensions, as explained in Table 32, would be 51, by adding the numbers in the top line and adding one-half of its own value to the number above the Checking Column, and the full value to its own amount below the Checking Column, and adding the total to the waist given in the lesser height, as explained for Table 32.

It will be noticed that if we figure this from the working table of averages, as explained for Tables 31 and 6, we gain only a 49-inch waist for the case in hand. This suggests the necessity of attention to types in order to gain the results desired.

The blade measure, being a width quantity, is $15\frac{1}{4}$ for a 47 breast, and the scye, front and over-shoulder measures may be gained from the ready reference tables as $10\frac{3}{4}$, $15\frac{1}{2}$ and $21\frac{3}{16}$, respectively.

The scye and the front shoulder will be modified by the $\frac{5}{8}$ inch of square shoulder formation, which is the amount the shoulder slope is less than normal. This makes the scye and front shoulder $10\frac{1}{8}$ and $14\frac{7}{8}$, instead of as given above.

The lower shoulder corresponding to the breast size is $30\frac{7}{8}$, and Table 51 gives the upper shoulder as $29\frac{1}{2}$, which is $1\frac{3}{8}$ less than the lower, one-half of which would give $\frac{11}{16}$, or within a small fraction corresponding to $\frac{5}{8}$ squareness, as called for by the direct shoulder slope.

The natural waist is $16\frac{3}{4}$ and the fashionable waist may be a little more than the average, or say $18\frac{1}{2}$ in this case, in order to add artificially to the appearance of the length of the waist. The sleeve for this height is $31\frac{3}{4}$.

The vest length, as per Table 53, is $28\frac{1}{4}$, and the opening may be made $15\frac{1}{8}$, or 1 inch less than half the full length, or more or less.

The trousers: Table 44 gives the corpulent seat size for a 47 breast as $49\frac{1}{4}$.

As the waist size is already determined as 51, we may use 49 seat even, with 51 waist, as per Table 54, which gives us an inseam of $29\frac{1}{8}$ and a rise of $11\frac{7}{8}$. The outseam would be 41. The knee would be $21\frac{3}{4}$ and the bottom $18\frac{1}{8}$.

The measures for a man of 47 breast, 5 feet 6 inches tall, modified as per "Order No. 2," would be as below.

For the Coat.

All Additions are Included.

$10\frac{1}{8}$ depth of scye.
$16\frac{3}{4}$ natural waist.
$18\frac{1}{2}$ fashionable waist.
$31\frac{1}{4}$ length of sack.
$38\frac{1}{4}$ length of cutaway.
47 breast.
51 waist.
$15\frac{1}{4}$ blade.
$14\frac{7}{8}$ front.
$21\frac{3}{16}$ over shoulder.
$29\frac{1}{2}$ upper shoulder.
$30\frac{7}{8}$ lower shoulder.
$31\frac{3}{4}$ sleeve length.

For the Vest.

$15\frac{1}{8}$ opening. $28\frac{1}{4}$ full length.

For the Trousers.

$11\frac{7}{8}$ rise.
$29\frac{1}{8}$ inseam.
41 outseam.
51 waist.
$49\frac{1}{4}$ seat.
$21\frac{3}{4}$ knee.
$18\frac{1}{8}$ bottom.

Order No. 3.

Height 5 feet 11.	Breast 37.
Slope $3\frac{5}{8}$.	$\frac{1}{2}$ stooping.

This brings us in contact with the third type, namely, the slender form. The height, 5 feet 11, and the width, 37 form the basis to work from.

Table 33 gives us the typical slender form quantities, and upon referring to it we find the height given exceeding the height corresponding to the width by 1 inch. Add one-half of itself, making $1\frac{1}{2}$ inch, and deduct this from the waist of the greater height, which in this case is $33\frac{1}{2}$, leaving 32 as the waist size. Proceed by this method for any other size or height when the given height exceeds the height corresponding to the breast size.

The short measures are: blade 13, which includes $\frac{1}{4}$ inch for the half-inch stoop. The scye and the front shoulder are $9\frac{13}{16}$ and $13\frac{1}{8}$, respectively, to which the $\frac{5}{8}$ inch extra slope must be added, making them $10\frac{7}{16}$ and $13\frac{3}{4}$. The over-shoulder is $18\frac{3}{16}$.

The long measures would register $25\frac{1}{8}$ lower shoulder and $26\frac{5}{8}$ upper shoulder, the difference being $1\frac{1}{2}$ inch, giving $\frac{1}{8}$ inch more slope than given in Table 5, but a remarkable approximation and a strong test for combination experiments demonstrating the flexibility of the method set forth.

The natural waist, as per the height dealt with is 18 inches, but the fashionable waist may be made $\frac{1}{4}$ inch less than for the average, or about $1\frac{1}{4}$ inch instead of $1\frac{1}{2}$ inch more than the natural waist, making $19\frac{1}{4}$ inches in this case.

The full length for a sack may be 30 inches, for a cutaway 37, for a double breasted frock $40\frac{1}{2}$ and for an overcoat $44\frac{3}{4}$.

The sleeve for this height is $33\frac{5}{8}$ inches long.

The vest opening and the length are $12\frac{1}{2}$ and 27, respectively.

The trousers for slender forms, as already determined, have a double inseam length of only 2 inches less than the total height, or 1 inch less than the half-height as a basis. $34\frac{1}{2}$ is the inseam corresponding to the height dealt with, and as the waist is practically an average for this type, it can be held at that.

The waist rise for this height is 10 inches, making the outseam $44\frac{1}{2}$ inches.

The ready reference Table 54 shows the flexibility in this instance, rise and inseam, as for a 38 seat and 32 waist the inseam comes within $\frac{1}{8}$ inch of the amount given above and the table can be used with much convenience and comparative safety.

For a 38 seat the knee and bottom sizes are $20\frac{1}{4}$ and $17\frac{1}{8}$, respectively. This would make our deductions, modified to slope and attitude, as follows:

FOR THE COAT.

All additions are included.

$10\frac{7}{16}$ depth of scye.	13 blade.
18 natural waist.	$13\frac{3}{4}$ front shoulder.
$19\frac{1}{4}$ fashionable waist.	$18\frac{3}{16}$ over shoulder.
30 length of sack.	$26\frac{5}{8}$ upper shoulder.
37 length of cutaway.	$25\frac{1}{8}$ lower shoulder.
37 breast.	$33\frac{5}{8}$ sleeve.
32 waist.	

FOR THE VEST.

$12\frac{1}{2}$ opening.	27 full length.

FOR THE TROUSERS.

10 rise.	38 seat.
$34\frac{1}{2}$ inseam.	$20\frac{1}{4}$ knee.
$44\frac{1}{2}$ outseam.	$17\frac{1}{8}$ bottom.
32 waist.	

Deductions gained by careful calculations, as herewith demonstrated, will result in dimensions that will give, out of a certain number of cases, results as satisfactory as when the measures are taken upon the person for whom the garments are to be made.

There are, of course, a few exceptions to this method, but they are trifling and immaterial. *Even two sets of measures of the same man, taken with equal care by an expert cutter, will generally vary.*

As this method has been introduced neither to do away with measures nor to improve upon them, but to act as a substitute in their absence and to give a surer hold on general trade knowledge, the reader will perhaps feel that its purpose has been acomplished. It enables the cutter to do easily many things that were before either impossible or extremely tedious and difficult.

READY REFERENCE RULES.

UNDER this heading several ready reference rules are given that may frequently be applied to advantage. Some of them are culled from the body of this work, but many are rules of averages, and a few are only applicable under certain conditions. For example, the quantity given to locate the shoulder point will apply only with average suppressions that are taken out in the usual way. Different rules emphasize the same proportions in unequal degrees to suit different conditions. In short, they do not all apply to all classes and all conditions with equal accuracy. They are here to select from as the reader may find need for them. They are not laws that cannot be disobeyed.

Any of the following rules will be found practically accurate.

SCYE DEPTH.

$\frac{1}{3}$ breast plus $3\frac{1}{4}$ inches.

The normal back width plus 2 inches.

BACK WIDTHS.

$\frac{1}{2}$ blade net plus $1\frac{3}{4}$ inch.

Full blade on scale of $\frac{2}{3}$ less $\frac{1}{12}$.

$\frac{2}{3}$ full blade less $\frac{1}{6}$ plus $1\frac{1}{4}$ inch (more or less).

One-third of $3\frac{1}{2}$ inches more than one-half breast.

Full blade on SCALE OF TWO-THIRDS less 1 inch.

$\frac{1}{4}$ breast plus 3 inches.

LOWER SHOULDER.

One-half breast plus $7\frac{1}{4}$ inches.

No rule can be given for the upper shoulder, as results depend largely on the slope or squareness of the shoulder.

THE BLADE.

The number gained by adding $3\frac{1}{2}$ inches to one-half full breast, used on the halves plus $1\frac{3}{4}$ inch gives the blade.

$\frac{1}{2}$ breast plus $3\frac{1}{2}$ inches.

One-third full breast, for the smaller sizes only.

$\frac{1}{2}$ breast on the halves plus 2 inches gives the blade as taken. Make usual additions.

SLEEVE LENGTHS.

Outside length. Full height less $2\frac{1}{2}$ inches, divided by 2.

Outside length. Half height less $1\frac{1}{4}$ inch.

UNDERARM LENGTHS.

$\frac{1}{4}$ height plus $1\frac{1}{4}$ inch.

INSEAM LENGTHS FOR TROUSERS.

Normal. Total height less 4 inches, divided by 2.

Normal. Half-height less 2 inches.

Corpulent. (Approximate) 3 inches less than ½ height plus ¼ inch for each inch the waist has gained above the normal.

Slender. 1 inch less than ½ height.

General. (Approximate) 3 inches less than ½ height plus ¼ inch for each inch the waist is less than seat. When the waist is larger than the seat, deduct ¼ inch from the length for each inch it exceeds the seat.

WAIST RISE FOR TROUSERS.

Normal: ½ inseam length less 5½ inches.

¼ height less 6¾ inches.

¼ seat.

Corpulent: ¼ height less 6¾ inches plus ¼ inch for each inch the waist gains above the normal.

General: ½ height, full seat and full waist, divided by 11.

One section height plus 3 inches. Add ¼ for each inch the waist is larger, or deduct ¼ inch for each inch the waist is smaller than the waist.

LENGTHS.

Natural waist, full scye depth plus 7¼ inches.

Natural waist, ⅓ breast plus 11 inches.

Natural waist, from the breast line down ⅙ breast plus 4⅜ inches.

Scye depth, from breast line up ⅓ breast plus 3¼ inches.

Length to seat, ⅓ breast and ¼ breast plus 14¼ inches.

Length to seat, ⅓ breast plus 19 inches.

Sack length, a stationary quantity, say 3½ inches, added to the vest length.

Sack length, ⅓ breast and ¼ breast plus 19 inches.

Sack length, one-half breast plus 10 inches, more or less.

Cutaway length, ¼ breast plus ¼ height plus 10 inches.

Vest length, ¼ height plus ¼ breast.

WIDTHS.

Breast sizes:—The normal blade (as taken) plus 1½ inch plus ½ breast on the halves gives one-half full breast plus 3½ inch addition.

Back width, ¼ breast plus 3 inches.

Scye width, ¼ breast plus ½ inch.

Blade, ½ breast plus 3½ inches.

Front shoulder, ½ breast plus 3¾ inches.

Over shoulder, ⅔ breast plus 5½ inches.

Collar size, (men) ¼ breast plus 6 inches.

Collar size, (women) ¼ bust plus 6 inches.

Knee size for trousers, ¼ height plus ¼ seat less 7 inches.

Bottom width for trousers, ½ knee plus 7 inches.

SHOULDER POINT.

Depth of scye ($2\frac{1}{2}$ inches suppression) plus 6 inches from the top of back center seam.

$\frac{2}{3}$ breast plus $3\frac{1}{2}$ inches from the back center line.

Twice the width of back plus $\frac{1}{2}$ inch, if the suppression is $2\frac{1}{2}$ inches.

The shoulder slope added in front of the front of scye line.

MISCELLANEOUS.

Hip pockets:—$\frac{2}{3}$ natural waist length down from the breast line.

$\frac{1}{3}$ and $\frac{1}{6}$ are equal to $\frac{1}{2}$ on the square.

$\frac{2}{3}$ and $\frac{1}{3}$ are equal to one-half of the full breast or waist.

$\frac{1}{2}$ and $\frac{1}{6}$ are $\frac{2}{3}$ on the square.

$\frac{1}{4}$ and $\frac{1}{12}$ are $\frac{1}{3}$ on the square.

$\frac{1}{8}$ and $\frac{1}{24}$ is $\frac{1}{6}$ on the square.

Double thigh averages 2 inches less than $\frac{1}{2}$ seat.

Single thigh averages $2\frac{1}{4}$ inches more than one-half seat.

To APPROXIMATE THE AMOUNT OF GOODS NEEDED BY THE DIMENSIONS OF THE PATTERNS, take the total of :—

Inseam length of trousers, outside length of sleeve, vest length and waist circumference, for goods 28 inches wide.

Reduce $\frac{1}{32}$ yard for each inch the material is wider than 28 inches, and increase $\frac{1}{16}$ yard for each inch the material is narrower than 28 inches.

FORMULA FOR FINDING THE SHORT MEASURES.

Allowance for making included.

Scye depth, $\frac{1}{3}$ breast plus $3\frac{1}{4}$ inches.

Blade, twice the scye depth on the SCALE OF TWO-THIRDS.

Front shoulder, $\frac{1}{4}$ inch more than the blade.

Over shoulder, twice the scye depth less 1 inch.

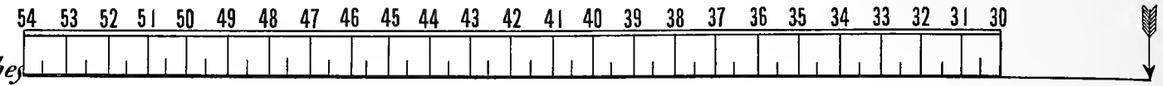
CARLSTROM'S Proportionate Scales

Depth of Scye

From Height to Width Points *plus* 5 inches.

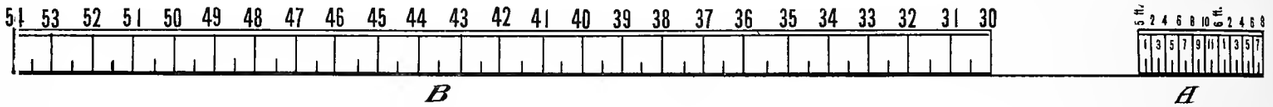
Blade

From Arrow to Size required plus 10 inches



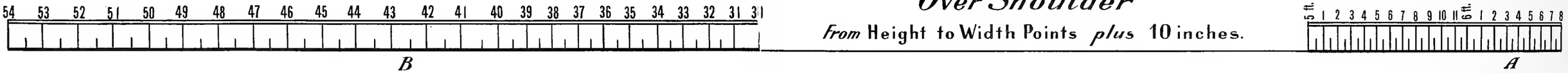
Front Shoulder

From Height to Width Points *plus* 10 inches.



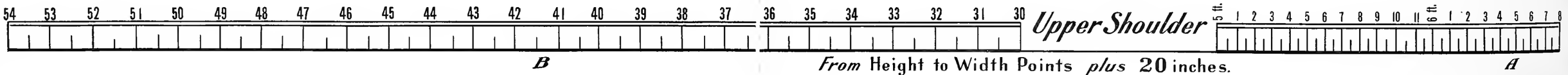
Over Shoulder

From Height to Width Points *plus* 10 inches.



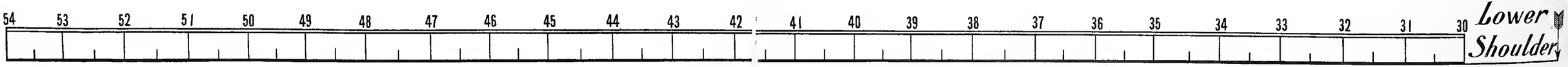
Upper Shoulder

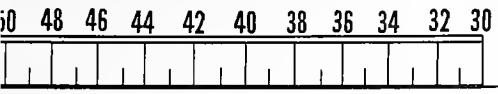
From Height to Width Points *plus* 20 inches.



Lower Shoulder

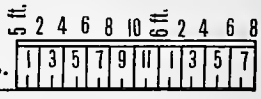
From Arrow to Size required plus 20 inches.

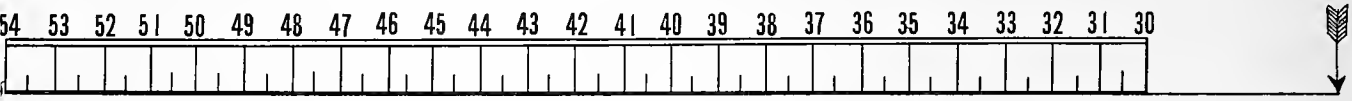


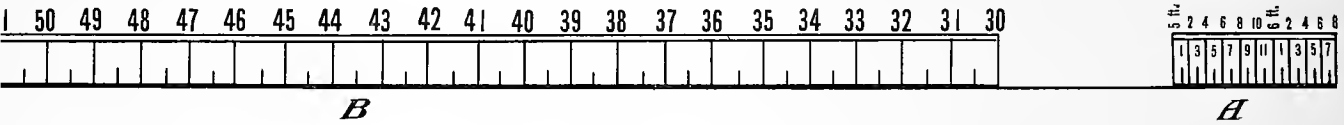


Depth of Scye

From Height to Width Points *plus* 5 inches.

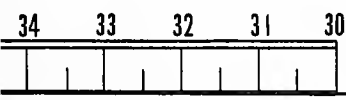




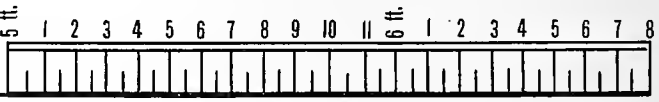


Over Shoulder

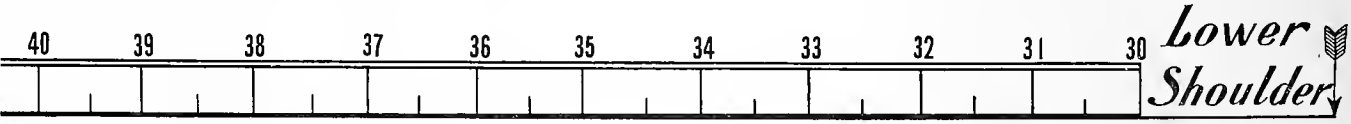
rom Height to Width Points *plus* 10 inches.



Upper Shoulder



rom Height to Width Points *plus* 20 inches.



Lower Shoulder

e required plus 20 inches.

THE SCALES.

THE scales that accompany this book are self-explanatory. As they are derived from counter-balancing height and width quantities, a flexibility is gained that will approximately meet all proportionate requirements of heights and widths.

HOW TO USE THE SCALES.

DEPTH OF SCYE.—From the height size on Scale A to the breast size on Scale B plus 5 inches.

EXAMPLE.

Breast, 36 *inches*. *Height*, 5 *feet* 8 *inches*.

Place the 5-inch point of a square or tape on the 5-feet-8-inch point of Scale A and find the quantity falling on the breast size required. *This includes all additions for making and ease.*

THE BLADE.—As the blade is only a width quantity the height is not used. To find the blade corresponding to any breast size place the 10-inch point of a square or tape at the arrow point. The quantity that falls on the breast size required is the blade *with additions for making and ease included.*

THE FRONT SHOULDER OR STRAP.—Place the 10-inch point of a square or tape on the height quantity required on Scale A and find the quantity falling on the breast size required on Scale B. *The additions are included.*

THE OVER SHOULDER.—Place the 10-inch point of a square or tape on the height quantity required on Scale A and find the quantity falling on the breast size required on Scale B. *All additions are included.*

THE UPPER SHOULDER.—Place the 20-inch point of a square or tape on the height quantity required on Scale A and find the quantity falling on the breast size required on Scale B. *This gives the measure net.*

THE LOWER SHOULDER.—As the lower shoulder is only a width quantity the height is not used. Apply the 20-inch point of the square or tape at the arrow point and find the quantity falling on the breast size required. *This gives the measure net.*

The additions given may be increased or decreased to suit any requirement met.

CONFIRMATORY INVESTIGATIONS.

THE aim of this volume has been to give a method that would stand the test of practical application. To this end all else has been subordinated.

As a final test, and at a fitting time, shortly after the completion of the foregoing, it was my privilege to examine the results of one of the most extensive researches ever made along this line, conducted by J. Gardner Smith, M. D., during the physical examinations of 6,000 men at the Young Men's Institute branch (from 1885 to 1888) and at the Harlem Branch of the Y. M. C. A. (1888 to 1889), both of New York City.

These examinations were made under the most favorable conditions and went into all possible details, such as dimensions in various postures, girths of extremities, as well as the trunks and the relative lengths of trunks and extremities, as well as tests to determine the activity of the organs.

While this data threw side lights on the subject in hand, the heights, widths and weights were, in particular, pertinent to the study of tailors' proportions. As the doctor's work was all done from the nude it pulled the averages down in proportion; but when allowance is made for clothing (which is necessary for our purpose, as the tailors' model is clothed), it approximates so nearly to the experiments which furnished the basis for this work that it can be called identical. This was only to be expected, because measures are measures.

The systematic taking of thousands of measurements of heights, weights and sectional measurements for the express purpose of furnishing a foundation for this work, and the counter-checking by the measurements referred to above, give a working basis that the critics of this book should show an equal of before their criticisms are conclusive. This is not said to forestall honest criticism, as honest criticism will be welcomed by the author; but unfortunately too many critics do not fully understand the subject they attack.

Some men look their wisest when they deliver themselves of negative opinions. They stand ever ready to take advantage of anything that enables them to take on the semblance of wisdom. On subjects of which they most need information they are particularly free with their condemnatory opinions. If they will give the principles and rules laid down in this work a fair trial in practice, the result will satisfy them that the author's work has not been in vain.

PART II.

BOYS' PROPORTIONS.

PROPORTIONS FOR BOYS.

THE original purpose of this book was to give a method for determining the quantities dealt with in constructing patterns for men's garments only by the proportions of heights and widths. The first part, just concluded, has amply covered this field; but actuated by a desire to give "good measure" we give a brief summary of boys' proportions in the tables to follow under this heading. While the elaborate experiments conducted to gain the results of the first part have not been repeated in full for the subject in hand, yet experiments that would be considered elaborate but for the comparison with the foregoing have given a basis for what will prove a fairly satisfactory explanation of the development of boys from 4 to 15 years of age.

Strict adherence to anatomical principles has not been aimed at, but like euphony in speech where rules of grammar are sometimes set aside when they impede harmonious expression, so the quantities used to gain the working power for children's, boys' and youths' proportions have been laid down on the lines of the preceding rules for adults.

The octaval division, while not actual in the smaller sizes, gives working quantities as near as do the anatomical quantities proper.

For instance, a child 6 months old is, normally, only 4 heads tall; at the age of one year he is 4½ heads; at the age of 4 years he is 5 heads; at 6 he is 6 heads, and at 14 he is 7 heads. Though his head is disproportionately large at birth and gradually diminishes as he increases in height, his waist is the center of his height and his finger tips reach to the same point at his thigh, generally speaking, at all of the periods of his development. This makes the octaval system an applicable quantity for use in considering the measurements of children.

With the general understanding that we already have, the following tables and explanations will be easily understood.

The author's aim has not been to make this work the most perfect but the most useful. . . . .

TABLE 59.

Line 1, ages consecutively from 7 to 15 years.

Line 2, average heights in accordance with average development of boys at these ages. It will be noted that the heights given indicate slow growth in the smaller sizes, an increased growth in the intermediate and a more rapid growth in the larger sizes, which will be found on investigation to correspond with the actual development of the normal boy.

Line 3, the heights in inches.

Line 4, the half-heights in inches.

Line 5, the quarter-heights in inches, and also the natural waist.

Line 6, one-eighth heights.

Line 7, the breast sizes corresponding to the ages and the heights contained in Lines 1 and 2, respectively.

Line 8, approximately correct waist sizes, by holding them equal to the breast during the slow growth period (as per first three lines to the left), then increasing $\frac{1}{2}$ inch to each size during the increased growth period (as per the three center lines), and increasing $\frac{3}{4}$ inch in the three columns to the right.

Line 9, the depths of scye by $\frac{1}{4}$ of the half-breast and $\frac{1}{4}$ of the height on the 4ths of the square plus $\frac{3}{4}$ inch.

Line 10, the blades, by $\frac{1}{6}$ breast plus $\frac{1}{3}$ breast plus $\frac{1}{8}$ breast.

Line 11, the front-shoulder measures, gained by $\frac{1}{2}$ breast and $\frac{1}{6}$ of the one-fourth height plus $1\frac{1}{4}$ inch.

Line 12, the over-shoulder measures, gained by $\frac{2}{3}$ breast plus the half height on the 8ths of the square plus $1\frac{5}{8}$ inches.

Line 13, the full length of coats, gained by adding $2\frac{1}{2}$ inches to the seat length. The seat length is three-eighths of the height, or three times the quantity in Line 6. The $2\frac{1}{2}$ inches addition may be more or less.

Line 14, the sleeve lengths gained as in Table 34, except that the allowance for outside measurement is 2 inches instead of 3, that only 5 inches is allowed for angles, and that the addition from the wrist to the full length is $\frac{1}{2}$ inch less than in that table.

We therefore gain the length as follows:

The height as per Line 3 plus 2 inches, added for the amount the outstretched arms are longer than the total height, plus 5 inches added for outside measurement. Divide by 2 to gain the amount from the center of the back to the finger tips. Deduct $\frac{1}{8}$ height (as per Line 6) to the wrist. Add 1 inch to gain the length to the hand and then add an additional 1 inch for seams.

Line 15, the vest lengths from $\frac{1}{4}$ breast and $\frac{1}{4}$ height.

Neck sizes may be gained by $\frac{1}{4}$ breast plus 6 inches.

TABLE 59.

Line 1	Ages	7	8	9	10	11	12	13	14	15
" 2	Heights in feet and inches	3 ft. 8 in.	3 ft. 9 in.	3 ft. 10 in.	4 ft.	4 ft. 2 in.	4 ft. 4 in.	4 ft. 7 in.	4 ft. 10 in.	5 ft. 1 in.
" 3	Heights in inches	44	45	46	48	50	52	55	58	61
" 4	Half-heights in inches	22	22 1/2	23	24	25	26	27 1/2	29	30 1/2
" 5	Fourth-heights in inches	11	11 1/4	11 1/2	12	12 1/2	13	13 3/4	14 1/2	15 1/4
" 6	Eighth-heights in inches	5 1/2	5 5/8	5 3/4	6	6 1/4	6 1/2	6 7/8	7 1/4	7 5/8
" 7	Breast sizes	24	25	26	27	28	29	30	31	32
" 8	Waist sizes	24	25	26	26 1/2	27	27 1/2	28	28 3/4	29 1/2
" 9	Scye depth	6 1/2	6 5/8	6 7/8	7	7 3/8	7 5/8	7 7/8	8 1/4	8 5/8
" 10	Blade	8 1/2	8 7/8	9 3/8	9 1/2	9 7/8	10 1/4	10 5/8	11	11 3/8
" 11	Front-shoulder	9	9 1/4	9 1/2	9 3/4	10 1/8	10 5/8	11	11 3/8	11 3/4
" 12	Over-shoulder	12 3/8	12 3/4	13 1/8	13 1/2	14	14 1/2	15 1/8	15 1/2	15 7/8
" 13	Full lengths of sacks	19	19 3/8	19 3/4	20 1/2	21 1/4	22	23 1/8	24 1/4	25 3/4
" 14	Sleeve lengths	22	22 3/8	22 3/4	23 1/2	24 1/4	25	26 1/8	27 1/4	28 3/4
" 15	Vest lengths	17	17 1/2	18	18 3/4	19 1/2	20 1/4	21 1/4	22 1/4	23 1/2

BOY'S TROUSERS.

THOUGH full length trousers are not in frequent use in the smaller sizes herein contained, yet we give the quantities for all sizes required for the guidance of those who wish to make them, to illustrate juvenile development, and to serve as a basis for breeches, which are commonly worn at these ages and which will be considered in the following table:

TABLE 60.

Line 1, ages as per Table 58.
Line 2, corresponding heights.
Line 3, heights reduced to inches.
Line 4, half-heights in inches.
Line 5, breast sizes.
Line 6, waist sizes as per Table 59.
Line 7, corresponding seat sizes.
Line 8, inseam lengths, which are 2 inches less than the half-height.
Line 9, rise, gained from $\frac{1}{8}$ the total height plus $1\frac{1}{2}$ inch.
Line 10, outside seam, gained by adding the contents of lines 8 and 9.
Line 11, basis for knee sizes, gained from $\frac{1}{4}$ height plus $\frac{1}{4}$ seat less 7 inches.
Line 12 the bottom, composed of half-knee plus 4 inches up to 12 years, 5 inches for 12 years, 6 inches for 13 years and 7 inches for 14 years and larger sizes.

As the average boy's development is not equal each year, the height and width quantities do not increase equally, and the length increase is relatively unevenly. Should an evenly increasing inseam length be desired, 1 inch may be added to each size, beginning as per the table, with $19\frac{1}{2}$ up to the 5-feet-3-inch height where $29\frac{1}{2}$ is given, above which point only $\frac{1}{2}$ inch is added to each size. Such a method is not according to ordinary development, but may be preferred by some.

TABLE 60.

Line 1	Ages	6	7	8	9	10	11	12	13	14	15	16	17	18
" 2	Heights in feet and inches	3 ft. 7 in.	3 ft. 8 in.	3 ft. 9 in.	3 ft. 10 in.	4 ft.	4 ft. 2 in.	4 ft. 4 in.	4 ft. 7 in.	4 ft. 10 in.	5 ft. 1 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.
" 3	Heights in inches	43	44	45	46	48	50	52	55	58	61	63	64	65
" 4	Half-heights in inches	21 1/2	22	22 1/2	23	24	25	26	27 1/2	29	30 1/2	31 1/2	32	32 1/2
" 5	Breast sizes	23	24	25	26	27	28	29	30	31	32	33	34	35
" 6	Waist sizes	23	24	25	26	26 1/2	27	27 1/2	28	28 3/4	29 1/2	30 1/4	31	31 3/4
" 7	Seat sizes	24	25	26	27	28	29	30	31	32	33	34	35	36
" 8	Inseam lengths	19 1/2	20	20 1/2	21	22	23	24	25 1/2	27	28 1/4	29 1/2	30	30 1/2
" 9	Waist rise	6 7/8	7	7 1/8	7 1/4	7 1/2	7 3/4	8 1/8	8 1/2	8 3/4	9	9 3/8	9 1/2	9 5/8
" 10	Outside seams	26 3/8	27	27 5/8	28 1/4	29 1/2	30 3/4	32 1/8	34	37 3/4	38 1/4	38 7/8	39 1/2	40 1/8
" 11	Bases for knee sizes	9 3/4	10 1/4	10 3/4	11 1/4	12	12 3/4	13 1/2	14 1/2	15 1/2	16 3/4	17 1/4	17 3/4	18 1/4
" 12	Bases for bottom widths	8 7/8	9 1/8	9 3/8	9 5/8	10	10 3/8	11 3/4	13 1/4	14 3/4	15 3/8	15 5/8	15 7/8	16 1/8

BOY'S BREECHES.

DIMENSIONS for breeches for boys may be gained on the same general plan as for trousers; but as breeches are worn before trousers we begin them from smaller ages and sizes as below:

TABLE 61.

Line 1, the ages.

Line 2, the heights.

Line 3, the half-heights in inches.

Line 4, the seat sizes.

Line 5, the waist sizes.

Line 6, the inseams, which are gained by one-half of the trousers lengths (as given in Line 8 of the preceding table) less $1\frac{1}{2}$ inch.

Line 7, the rise, which may be gained exactly as per Line 9 of Table 59; but in this table we have made it $\frac{1}{4}$ inch less on account of breeches being worn without suspenders and therefore are not held up as high as the trousers.

Line 8, the outseams.

This gives a fair idea of proportions for boys. The general knowledge we have already gained will enable us better to understand them than if the preceding proportions had not been studied before taking up those of boys.

TABLE 61.

Line 1	Ages	4	5	6	7	8	9	10	11	12	13	14	15
" 2	Heights in feet and inches	3 ft. 5 in.	3 ft. 6 in.	3 ft. 7 in.	3 ft. 8 in.	3 ft. 9 in.	3 ft. 10 in.	4 ft.	4 ft. 2 in.	4 ft. 4 in.	4 ft. 7 in.	4 ft. 10 in.	5 ft. 1 in.
" 3	Half-heights in inches	20 1/2	21	21 1/2	22	22 1/2	23	24	25	26	27 1/2	29	30 1/2
" 4	Waist sizes	21	22	23	24	25	26	26 1/2	27	27 1/2	28	28 3/4	29 1/2
" 5	Seat sizes	22	23	24	25	26	27	28	29	30	31	32	33
" 6	Inseam lengths	7 3/4	8	8 1/4	8 1/2	8 3/4	9	9 1/2	10	10 1/2	11 1/4	12	13
" 7	Waist rise	6 3/8	6 1/2	6 5/8	6 3/4	6 7/8	7	7 1/4	7 1/2	7 7/8	8 1/4	8 1/2	9
" 8	Outseam lengths	14 1/8	14 1/2	14 7/8	15 1/4	15 5/8	16	16 3/4	17 1/2	18 3/8	19 1/2	20 1/2	22

PART III.

WOMEN'S PROPORTIONS.

PROPORTIONS FOR WOMAN'S GARMENTS.

TO go as minutely into all of the component parts of the proportions of women's measurements as we have gone into men's, would make another volume necessary. This we shall not do for two reasons. First, because the study of the foregoing rules and tables has made us, in a general way, familiar with proportions, and we are, therefore, approaching the explanations to follow with a general understanding of their value. Secondly, it was not the original purpose to touch upon women's proportions in this volume; but they have been added at an expense and an amount of labor apparently disproportionate to the result, merely to give a heaping measure to the original plan.

The rules governing these proportions have been determined from the classic statues and an average based on the measures of many individuals. Both have furnished their quota toward the accompanying results; the former toward a working principle and the latter for the application of that principle.

Much interesting detail, such as the general proportions, which are perhaps more adapted to art than to tailoring, has been left out in order not to weight the subject down with anything superfluous.

Those who would complicate knowledge would build a crooked road instead of a straight one. . . . . .

TABLE 62.

Line 1, the average heights in feet and inches.

Line 2, the same heights reduced to inches.

Line 3, the half-heights in inches.

Line 4 would be the half-heights in inches, if the heights continued to increase at the same rate above the 5 feet 10 inch height as they do below it.

Line 5, the first units and fractions of Line 3 up to the 5-feet-10-inch height and of Line 4 above it.

Line 6, the one-fourth-heights of the height quantities given in Lines 1 and 2.

Line 7, the first units and fractions of the figures in Line 6.

Line 8, one-eighth-heights of the heights given in Lines 1 and 2.

Line 9, additions that may be used to gain an increasing breast quantity for the smaller sizes, as breast and bust become nearer equal in those sizes.

The above quantities have been established as working quantities toward the application of widths to follow.

Line 10, the breast sizes by adding Lines 3, 5 and 9.

Line 11, the bust sizes from 32 to 50, corresponding to the heights given above.

Line 12, the waist sizes, which are gained by adding Lines 6 and 7, dividing by 2, and deducting the remainder from Line 11. The result will be the waist sizes given in Line 12.

Example :—The figures in Lines 6 and 7 under the 5 feet 8 inch height are, respectively, 17 and 7, which when added make 24, and leave 12 when divided by 2. Deduct the 12 from 40 in Line 11, leaving 28, as per Line 12.

Line 13, the hip sizes as taken 5 inches below the waist. They are gained by adding Lines 7 and 11.

Line 14, the depths of scye: $\frac{1}{6}$ breast on the square plus $\frac{1}{4}$ height on the fourths of the square plus $\frac{1}{4}$ inch.

Line 15, the blades, which are gained from $\frac{1}{3}$ and $\frac{1}{4}$ bust.

Line 16, the front shoulders, which are $\frac{1}{12}$ of the fourth height plus $\frac{1}{2}$ bust plus $\frac{3}{4}$ inch.

Line 17, the over-shoulder measures: $\frac{2}{3}$ bust on the square plus $\frac{1}{6}$ of one-fourth height on the square plus 1 inch.

Line 18, neck sizes, from $\frac{1}{4}$ breast plus 6 inches.

Line 19, the cuff sizes from $\frac{1}{8}$ bust and $\frac{1}{8}$ waist.

Line 20, the elbow widths (quantities that will prove flexible when flesh is taken on), gained by $\frac{1}{4}$ bust and $\frac{1}{8}$ waist.

Line 21, skirt lengths corresponding to the heights and widths given.

Line 22, skirt lengths when the waist increases. These lengths give the key for skirt lengths for corpulent figures. 1 inch has been added to the length of the normal skirt for each inch that the waist has gained on the bust from a standard of 12 inches less waist than the bust. This increased length is required to go over the curve, instead of a straight line, when flesh is taken on, and as the curved line is always the longer, the length thus taken up must be provided for.

Additional gain means additional length to be provided, and the same basis as given above may be used as occasion demands.

TABLE 62.

		5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.
Line 1	Heights in feet and inches																			
" 2	Heights in inches	60	61	62	63	64	65	66	67	68	69	70	69½	69	68½	68	67½	67	66½	66
" 3	Half-heights in inches	30	30½	31	31½	32	32½	33	33½	34	34½	35	34¾	34½	34¼	34	33¾	33½	33¼	33
" 4	Half-heights progressively	"	"	"	"	"	"	"	"	"	"	"	35½	36	36½	37	37½	38	38½	39
" 5	First unit of Line 4	0	½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7	7½	8	8½	9
" 6	Fourth-heights	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17⅜	17¼	17⅛	17	16⅞	16¾	16⅝	16½
" 7	First unit of Line 6	5	5¼	5½	5¾	6	6¼	6½	6¾	7	7¼	7½	7⅜	7¼	7⅛	7	6⅞	6¾	6⅝	6½
" 8	Eighth-heights, or one section	7½	7⅝	7¾	7⅞	8	8⅛	8¼	8⅜	8½	8⅝	8¾	8⁁16	8⅝	8 9/16	8½	8 7/16	8⅜	8 5/16	8¼
" 9	Arbitrary additions	¾	⅝	½	⅜	¼														
" 10	Breast sizes	30¾	31⅝	32½	33⅜	34¼	35⅛	36	37	38	39	40	41	42	43	44	45	46	47	48
" 11	Bust sizes	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 12	Waist sizes	22	23¼	23½	24¼	25	25¾	26½	27¼	28	28¾	29½	30⅝	31¼	32⅞	34	35⅛	36¼	37⅜	38½
" 13	Hip sizes	37	38¼	39½	40¾	42	43¼	44½	45¾	47	48¼	49½	50⅜	51¼	52⅛	53	53⅞	54¾	55⅝	56½
" 14	Depth of scye	6⅝	6¾	7	7⅛	7¼	7⅜	7½	7 11/16	7 13/16	7 15/16	8 1/16	8⅛	8¼	8 5/16	8⅜	8 7/16	8½	8 9/16	8⅝
" 15	Blade	9⅜	9⅝	9⅞	10 3/16	10½	10 13/16	11⅛	11⅜	11⅝	11 15/16	12¼	12 9/16	12⅞	13⅛	13⅜	13 11/16	14	14 5/16	14⅝
" 16	Front-shoulder measure	10	10 5/16	10 9/16	10 13/16	11⅛	11⅜	11⅝	11⅞	12¼	12½	12¾	13	13¼	13½	13¾	14	14¼	14½	14¾
" 17	Over-shoulder measure	14⅛	14½	14⅞	15¼	15⅝	16⅛	16⅜	16¾	17⅛	17½	17⅞	18¼	18½	18⅞	19¼	19⅜	19¾	20⅛	20⅜
" 18	Neck sizes	13 11/16	14	14 2/16	14 5/16	14 9/16	14 13/16	15	15¼	15½	15¾	16	16¼	16½	16¾	17	17¼	17½	17¾	18
" 19	A basis for cuff sizes	6⅝	7	7⅛	7⅜	7⅝	7¾	8	8¼	8½	8⅝	8⅞	9⅛	9½	9¾	10	10¼	10½	10¾	11
" 20	A basis for elbow widths	10¾	11⅛	11⅜	11¾	12⅛	12⅜	12¾	13⅛	13½	13¾	14⅛	14½	15	15⅜	15¾	16⅛	16½	16⅞	17¼
" 21	Normal skirt lengths	38½	39⅛	39¾	40⅜	41	41⅝	42¼	42⅞	43½	44⅛	44¾	44⅞	44⅞	44 1/16	43½	43 3/16	42⅞	42 9/16	42¼
" 22	Corpulent skirt lengths									43½	44⅜	44¾	44⅞	44⅜	44 3/16	43½	43 7/16	43⅜	43 1/16	42½

PROPORTIONS FOR GIRLS.

THIS table is supplementary to the preceding table for adults and might have been placed to the left of it, thereby making the two tables continuous. It is, however, separated from the larger in order to divide them into the classes to which each naturally belongs. The quantities have, in the main, been gained as explained in Table 62, but some deviations have been made better to carry out the average gained from the measures taken of this class of forms.

TABLE 63.

Line 1, the ages.

Line 2, the heights in feet and inches. As growth is not even at the ages dealt with, the heights are given on the basis of average development, therefore not consecutively.

Line 3, the heights reduced to inches.

Line 4, the half-heights in inches.

Line 5, the one-fourth heights in inches.

Line 6, the first units of the one-fourth heights in Line 4.

Line 7, one section, or $\frac{1}{8}$ of the heights.

Line 8, the chest sizes consecutively from 24, including 31.

Line 9, the waist sizes, which may be gained by deducting the first unit and fractions, as per Line 6, from the half-heights of Line 4, but we have held them at an even number, which seems to be a fair average.

Line 10, the hip sizes, gained by adding Lines 6 and 8.

Lines 11, 12, 13 and 14 may be gained exactly as explained for Lines 14, 15, 16 and 17 of the previous table, but as the tendency is toward a too rapid decrease on account of the decrease of the quantities from which they are gained, we have given a slight allowance above those quantities, thereby insuring more ease.

Line 15, the neck sizes, gained from $\frac{1}{4}$ chest plus 6 inches.

Line 16, the cuff widths, gained from $\frac{1}{8}$ chest and $\frac{1}{8}$ waist.

Line 17, the elbow widths, gained from $\frac{1}{4}$ chest plus $\frac{1}{8}$ waist.

Line 18, short skirt lengths, gained from three sections of height plus 1 inch. A long skirt length can be gained as explained for Line 21 of the preceding table.

TABLE 63.

		6	7	8	9	10	11	12	13
Line 1	The ages								
" 2	Heights in feet and inches	3 ft. 8 in.	3 ft. 9 in.	3 ft. 10 in.	4 ft.	4 ft. 2 in.	4 ft. 5 in.	4 ft. 8 in.	4 ft. 10 in.
" 3	Heights in inches	44	45	46	48	50	53	56	58
" 4	Half-heights in inches	22	22 1/2	23	24	25	26 1/2	28	29
" 5	Fourth-heights in inches	11	11 1/4	11 1/2	12	12 1/2	13 1/4	14	14 1/2
" 6	First unit of Line 5	1	1 1/4	1 1/2	2	2 1/2	3 1/4	4	4 1/2
" 7	Eighth-heights, or one section	5 1/2	5 5/8	5 3/4	6	6 3/8	6 5/8	7	7 1/4
" 8	Chest sizes	24	25	26	27	28	29	30	31
" 9	Waist sizes	22	22	22	22	22	22	22	22
" 10	Hip sizes	25	26 1/4	27 1/2	29	30 1/2	32 1/4	34	35 1/2
" 11	Depth of scye	6 1/16	6 1/8	6 3/16	6 1/4	6 5/16	6 3/8	6 7/16	6 1/2
" 12	Blade	7	7 5/16	7 5/8	7 7/8	8 1/8	8 7/16	8 3/4	9
" 13	Front-shoulder measure	8 9/16	8 3/4	8 15/16	9 1/8	9 5/16	9 1/2	9 11/16	9 7/8
" 14	Over-shoulder measure	11 3/8	11 3/4	12 1/8	12 1/2	12 7/8	13 1/4	13 5/8	14
" 15	Neck sizes	12	12 1/4	12 1/2	12 3/4	13	13 1/4	13 1/2	13 3/4
" 16	Cuff sizes	5 1/2	5 5/8	5 3/4	5 7/8	6	6 1/8	6 1/4	6 3/8
" 17	Elbow widths	8 1/2	8 3/4	9	9 1/4	9 1/2	9 3/4	10	10 1/4
" 18	Short skirt lengths	17 1/2	17 7/8	18 1/4	19	20 1/2	21 3/8	22	22 3/4

SLEEVE LENGTHS FOR WOMEN.

SLEEVES for women are handled much the same as for men. Some differences occur, however, as, for instance, instead of the outstretched arms exceeding the height, as for men, they are equal in women.

This furnishes a new basis to figure from. The angle allowance is $5\frac{1}{2}$ inches, instead of 6 inches for men. In other words, the outstretched arms plus $5\frac{1}{2}$ inches give the total length to the finger tips. From this deduct $\frac{1}{8}$ height, to find the length to just above the wrist, add to this $1\frac{1}{4}$ inch to reach from the wrist to the hand and then add $\frac{3}{4}$ inch for the three seams encountered; the total is the full length of the sleeve.

The reading of the explanations of Table 34 before applying the quantities just given, will aid in understanding the detail workings of the following table:

TABLE 64.

Line 1, the heights.

Line 2, bust sizes corresponding.

Line 3, the outside sleeve lengths by heights.

Line 4, normal underarm lengths gained from two sections of height plus 1 inch.

TABLE 64.

Line 1	Heights in feet and inches	5 ft.	5 ft. 1 in.	5 ft. 2 in.	5 ft. 3 in.	5 ft. 4 in.	5 ft. 5 in.	5 ft. 6 in.	5 ft. 7 in.	5 ft. 8 in.	5 ft. 9 in.	5 ft. 10 in.	5 ft. 9½ in.	5 ft. 9 in.	5 ft. 8½ in.	5 ft. 8 in.	5 ft. 7½ in.	5 ft. 7 in.	5 ft. 6½ in.	5 ft. 6 in.
" 2	Bust sizes	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
" 3	Outseam lengths	27	27 3/8	27 3/4	28 1/8	28 1/2	28 7/8	29 1/4	29 5/8	30	30 3/8	30 3/4	30 9/16	30 3/8	30 3/16	30	29 11/16	29 5/8	29 6/16	29 1/4
" 4	Underarm lengths	16	16 1/4	16 1/2	16 3/4	17	17 1/4	17 1/2	17 3/4	18	18 1/4	18 1/2	18 3/4	18 1/4	18 1/8	18	17 7/8	17 3/4	17 5/8	17 1/2

SLEEVE LENGTHS FOR GIRLS.

SLEEVES for girls are in every way the same as explained in the previous table, except that the addition from the wrist to the hand is only ¾ inch.

TABLE 65.

Line 1	Heights in feet and inches	3 ft. 8 in.	3 ft. 9 in.	3 ft. 10 in.	4 ft.	4 ft. 2 in.	4 ft. 5 in.	4 ft. 8 in.	4 ft. 10 in.
" 2	Chest sizes	24	25	26	27	28	29	30	31
" 3	Outseam lengths	20½	20¾	21¼	22	22⅞	23⅞	25	25¾
" 4	Underarm lengths	12	12¼	12½	13	13¾	14¼	15	15½

Line 1, the heights.
Line 2, the chest sizes corresponding.
Line 3, the outside lengths as explained.
Line 4, the underarm lengths as explained in the previous table.

THE END

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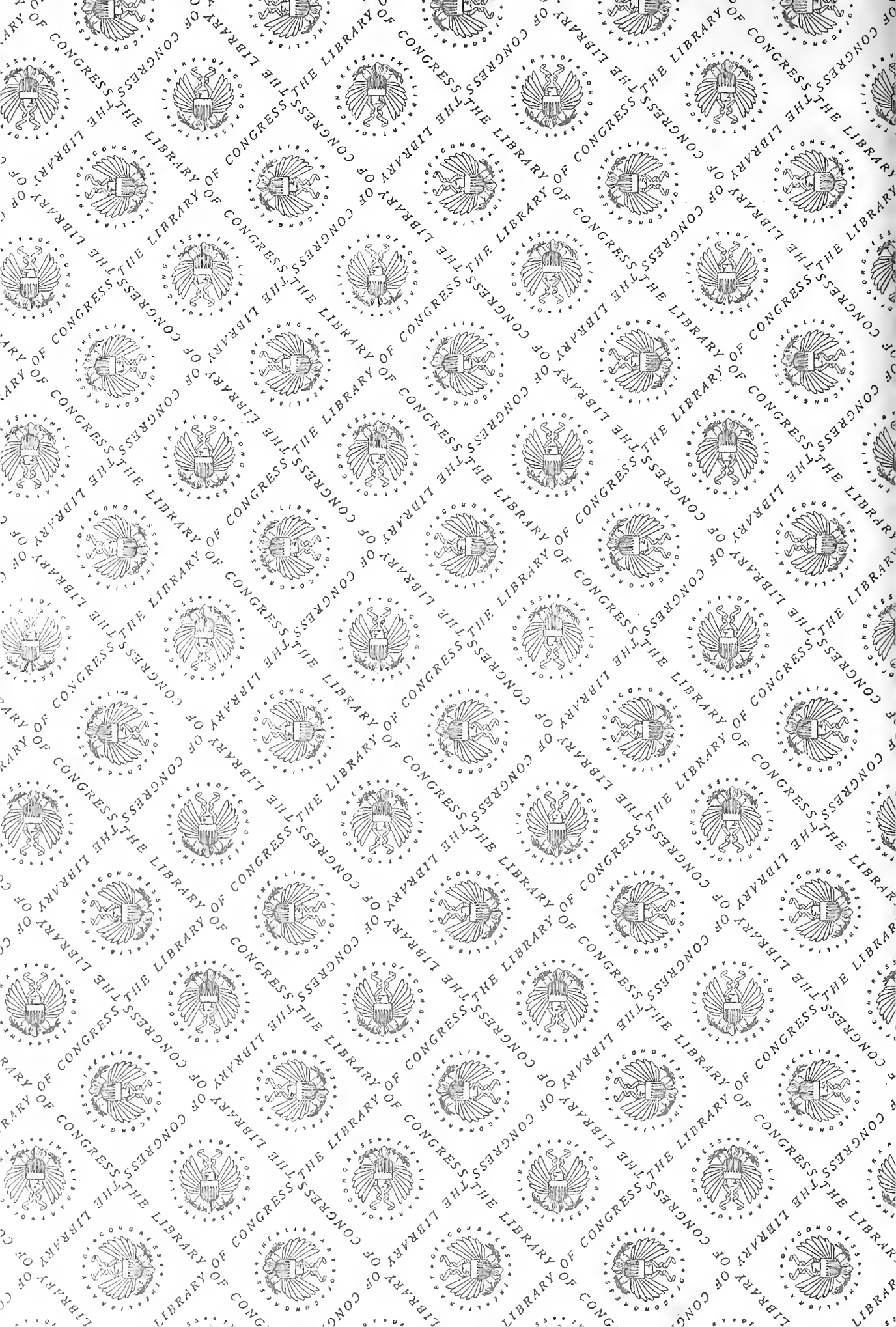
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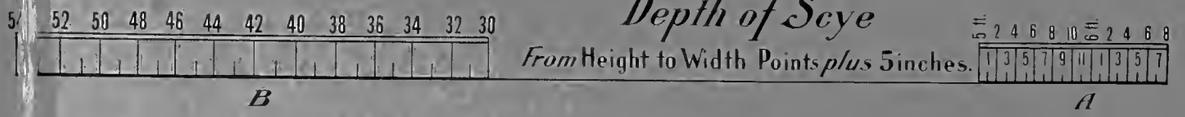
Carlstrom's Proportionate Scales

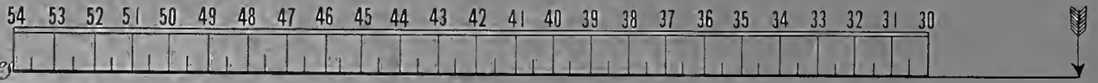


Depth of Scye

From Height to Width Points *plus* 5 inches.

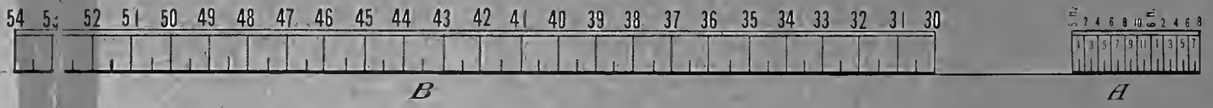
Blade

From Arrow to Size required plus 10 inches



Front Shoulder

From Height to Width Points *plus* 10 inches.



Over Shoulder

From Height to Width Points *plus* 10 inches.

Upper Shoulder

From Height to Width Points *plus* 20 inches.

Lower Shoulder

From Arrow to Size required plus 20 inches.

Duplicate of scales contained in "Carlstrom's Proportions" (copyrighted). Issued to make it unnecessary to remove the scales from the book.
If it is decided to do away with the additions, cut out each set of scales and paste them as much further apart as the additions called for on the scales.